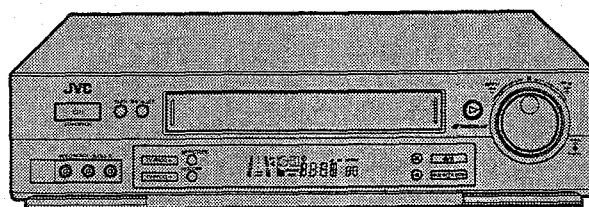
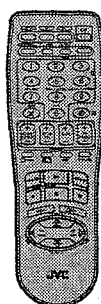


JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-DD858E/EH



SHOWVIEW

TIME SCAN

Hi-Fi VHS
PAL

SPECIFICATIONS

GENERAL

Power requirement : AC 220 – 240 V~, 50/60 Hz

Power consumption

Power on : 24 W

Power off : 5.5 W

Power save

(HR-DD858E only): 3 W

Temperature

Operating : 5°C to 40°C

Storage : -20°C to 60°C

Operating position : Horizontal only

Dimensions (WxHxD) : 400 x 94 x 347 mm

Weight : 3.8 kg

Format : VHS PAL standard

Maximum recording time

(SP) : 240 min. with E-240 video cassette

(LP) : 480 min. with E-240 video cassette

VIDEO/AUDIO

Signal system : PAL-type colour signal and CCIR monochrome signal, 625 lines 50 fields

Recording system : DA4 (Double Azimuth) head helical scan system

Signal-to-noise ratio : 45 dB

Horizontal resolution : 250 lines

Frequency range : 70 Hz to 10,000 Hz (Normal audio)

20 Hz to 20,000 Hz (Hi-Fi audio)

Input/Output : 21-pin scart connectors :

IN/OUT x 1, IN/DECODER x 1

RCA connectors:

VIDEO IN x 1, AUDIO IN x 1, AUDIO

OUT x 1

TUNER/TIMER

TV channel storage capacity

: 99 positions
(+AUX position)

Tuning system

: Frequency synthesized tuner

Channel coverage

: VHF 47 – 89/104 – 300/

302 – 470MHz

UHF 470 – 862MHz

Aerial output

: UHF channels 22 – 69
(Adjustable)

Memory backup time

: Approx. 60 min.

ACCESSORIES

Provided accessories

: RF cable,
Infrared remote control unit,
"R6" battery x 2,
Connector cover (for front panel
connectors)

*Specifications shown are for SP mode unless otherwise specified.
E. & O.E. Design and specifications subject to change without
notice.*

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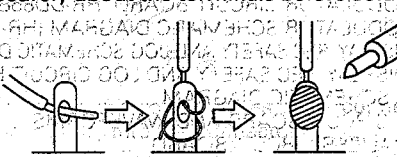
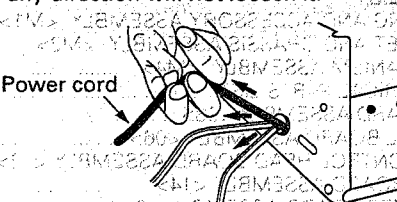
The following table lists the differing points between Models (HR-DD858E and HR-DD858EH) in this series.

	HR-DD858E	HR-DD858EH
POWER SAVE	NOT USED	USED
STEREO DECODER	NICAM/A2	A2

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.
2. Parts identified by the $\triangle$ symbol and shaded (■) parts are critical for safety.
Replace only with specified part numbers.
Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.
3. Fuse replacement caution notice:
Caution for continued protection against fire hazard.
Replace only with same type and rated fuse(s) as specified.
4. Use specified internal wiring. Note especially:
1) Wires covered with PVC tubing
2) Double insulated wires
3) High voltage leads
5. Use specified insulating materials for hazardous live parts. Note especially:
1) Insulation Tape 3) Spacers 5) Barrier
2) PVC tubing 4) Insulation sheets for transistors
6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

Fig. 1
7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)
8. Check that replaced wires do not contact sharp edged or pointed parts.
9. When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.

Fig. 2
10. Also check areas surrounding repaired locations.
11. Products using cathode ray tubes (CRTs)
In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps:

- 1) Connector part number : E03830-001
- 2) Required tool : Connector crimping tool of the proper type which will not damage insulated parts.
- 3) Replacement procedure
(1) Remove the old connector by cutting the wires at a point close to the connector.
Important : Do not reuse a connector (discard it).



Fig. 3

- (2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

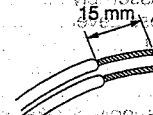


Fig. 4

- (3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

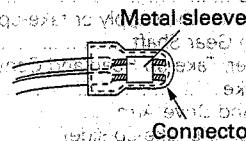


Fig. 5

- (4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

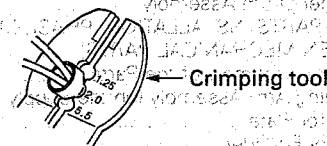


Fig. 6

- (5) Check the four points noted in Fig. 7.

Not easily pulled free Crimped at approx. center of metal sleeve



Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Insulation resistance test

Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

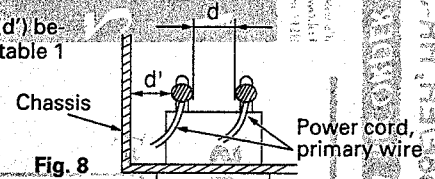


Fig. 8

4. Leakage current test

Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method : (Power ON)

Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

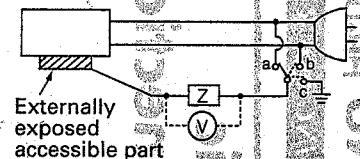


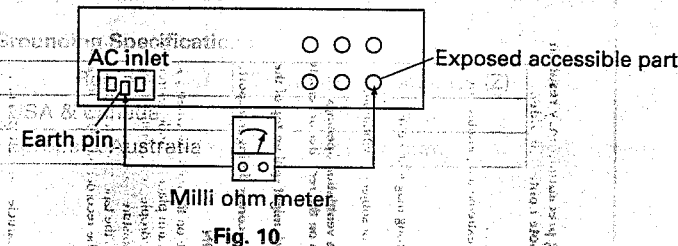
Fig. 9

5. Grounding (Class I model only)

Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).

Measuring Method:

Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.



Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	$Z \leq 0.1 \text{ ohm}$
Europe & Australia	$Z \leq 0.5 \text{ ohm}$

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	$R \geq 1 \text{ M}\Omega/500 \text{ V DC}$	AC 1 kV 1 minute	$d, d' \geq 3 \text{ mm}$
100 to 240 V			AC 1.5 kV 1 minute	$d, d' \geq 4 \text{ mm}$
110 to 130 V	USA & Canada	-	AC 1 kV 1 minute	$d, d' \geq 3.2 \text{ mm}$
110 to 130 V	Europe & Australia	$R \geq 10 \text{ M}\Omega/500 \text{ V DC}$	AC 3 kV 1 minute (Class II)	$d \geq 4 \text{ mm}$
200 to 240 V			AC 1.5 kV 1 minute (Class I)	$d' \geq 8 \text{ mm}$ (Power cord) $d' \geq 6 \text{ mm}$ (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	$1 \text{ k}\Omega$	$i \leq 1 \text{ mA rms}$	Exposed accessible parts
110 to 130 V	USA & Canada	$0.15 \mu\text{F}$ and $1.5 \text{ k}\Omega$	$i \leq 0.5 \text{ mA rms}$	Exposed accessible parts
110 to 130 V	Europe & Australia	$2 \text{ k}\Omega$	$i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$	Antenna earth terminals
220 to 240 V		$50 \text{ k}\Omega$	$i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

Safety Precautions

The rating plate and the safety caution are on the rear of the unit.

WARNING: DANGEROUS VOLTAGE INSIDE

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

CAUTION

- When you are not using the recorder for a long period of time, it is recommended that you disconnect the power cord from the mains outlet.
- Dangerous voltage inside. Refer internal servicing to qualified service personnel. To prevent electric shock or fire hazard, remove the power cord from the mains outlet prior to connecting or disconnecting any signal lead or aerial.

WARNING

There are two different types of SECAM colour systems: SECAM-L, used in FRANCE (also called SECAM-West), and SECAM-B, used in Eastern European countries (also called SECAM-East).

1. This recorder can also receive SECAM-B colour television signals for recording and playback.
2. Recordings made of SECAM-B television signals produce monochrome pictures if played back on a video recorder of SECAM-L standard, or do not produce normal colour pictures if played back on a PAL video recorder with SECAM-B system incorporated (even if the TV set is SECAM-compatible).
3. SECAM-L prerecorded cassettes or recordings made with a SECAM-L video recorder produce monochrome pictures when played back with this recorder.
4. This recorder cannot be used for the SECAM-L standard. Use a SECAM-L recorder to record SECAM-L signals.

For Italy:

"It is declared that this product, brand JVC, conforms to the Ministry Decree n° 548 of 28 Aug. '95 published in the Official Gazette of the Italian Republic n. 301 of 28 Dec. '95"

The STANDBY/ON ϕ /I button does not completely shut off mains power from the unit, but switches operating current on and off. " ϕ " shows electrical power standby and " I " shows ON.



- Cassettes marked "VHS" (or "S-VHS") can be used with this video cassette recorder, however, only VHS signals can be played back and recorded.
- HQ VHS is compatible with existing VHS equipment.
- ShowView is a registered trademark of Gemstar Development Corporation. The ShowView system is manufactured under licence from Gemstar Development Corporation.
- Certain audio features of this product manufactured under a license from Desper Products, Inc. Spatializer® is a trademark owned by Desper Products, Inc.

IMPORTANT

- Please read the various precautions on this page before installing or operating the recorder.
- It should be noted that it may be unlawful to re-record pre-recorded tapes, records, or discs without the consent of the owner of copyright in the sound or video recording, broadcast or cable programme and in any literary, dramatic, musical, or artistic work embodied therein.

Video tapes recorded with this video recorder in the LP (Long Play) mode cannot be played back on a single-speed video recorder.

Failure to heed the following precautions may result in damage to the recorder, remote control or video cassette.

1. DO NOT place the recorder . . .

- ... in an environment prone to extreme temperatures or humidity.
- ... in direct sunlight.
- ... in a dusty environment.
- ... in an environment where strong magnetic fields are generated.
- ... on a surface that is unstable or subject to vibration.

2. DO NOT block the recorder's ventilation openings.

3. DO NOT place heavy objects on the recorder or remote control.

4. DO NOT place anything which might spill on top of the recorder or remote control.

5. AVOID violent shocks to the recorder during transport.

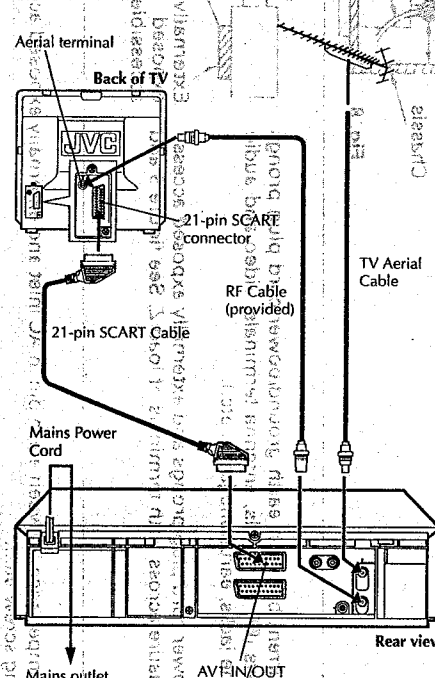
MOISTURE CONDENSATION

Moisture in the air will condense on the recorder when you move it from a cold place to a warm place, or under extremely humid conditions—just as water droplets form in the surface of a glass filled with cold liquid. Moisture condensation on the head drum will cause damage to the tape. In conditions where condensation may occur, keep the recorder turned on for a few hours to let the moisture dry.

ABOUT HEAD CLEANING

Accumulation of dirt and other particles on the video heads may cause the playback picture to become blurred or interrupted. Be sure to contact your nearest JVC dealer if such troubles occur.

Basic Connections



Make AV connection if your TV has a 21-pin AV input connector (SCART) in order to reduce the possibility of interference. And if you are using a stereo TV, you will need this cable in order to enjoy stereo playback of videotapes.

It's essential that your video recorder be properly connected. Follow these steps carefully. THESE STEPS MUST BE COMPLETED BEFORE ANY VIDEO OPERATION CAN BE PERFORMED.

CHECK CONTENTS

Make sure the package contains all of the accessories listed in "Specifications" (pg. 62).

SITUATE RECORDER

Place the recorder on a stable, horizontal surface.

CONNECT RECORDER TO TV

The connection method you use depends on the type of TV you have:

RF CONNECTION

- To Connect To A TV With NO AV Input Terminals . . .
 - a. Disconnect the TV aerial cable from the TV.
 - b. Connect the TV aerial cable to the ANT. IN jack on the rear panel of the recorder.
 - c. Connect the provided RF cable between the RF OUT jack on the rear panel of the recorder and the TV's aerial terminal.

AV CONNECTION

- To Connect To A TV With AV Input Terminals . . .
 - a. Connect the aerial, recorder and TV as per RF CONNECTION.
 - b. Connect an optional SCART cable between the AV1 IN/OUT socket on the rear panel of the recorder and the TV's 21-pin SCART connector.

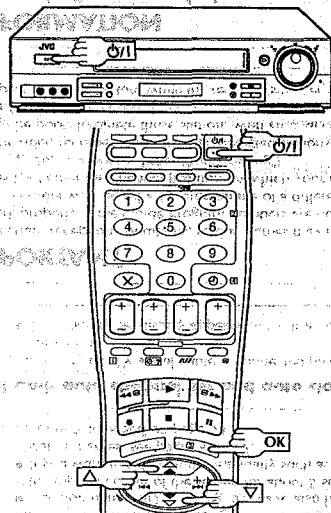
CONNECT RECORDER TO MAINS

Plug the end of the mains power cord into a mains outlet.

After you plug the mains power cord into a mains outlet, the Country Set display appears on the TV screen and/or on the recorder's front display panel when the ϕ /I button on the recorder/remote control is pressed for the first time to power on the recorder; go to page 4 to perform Auto Set Up.

Auto Set Up

Auto Channel Set/Auto Clock Set/Auto Guide Program Number Set/Auto Video Channel Set



International Telephone Country Code		
SUISSE	: 41	SUOMI : 358
ITALIA	: 39	PORTUGAL : 351
ESPAÑA	: 34	DEUTSCHLAND : 49
BELGIUM	: 32	NORGE : 47
NEDERLAND	: 31	SVERIGE : 46
GREECE	: 30	DANMARK : 45
OTHERS	: --	ÖSTERREICH : 43

ATTENTION

Once you have performed Auto Set Up, even if the recorder's memory backup has expired, all the stored stations and their Guide Program numbers remain in the recorder's memory and the recorder will not perform Auto Set Up again. You only need to set the clock. (pg. 54)

If you have moved to a different area, perform each setting as required.

- Video Channel setting (for RF connection users) pg. 45
- Tuner setting pg. 46
- Clock setting pg. 54

If a new station starts broadcasting in your area, perform tuner setting (pg. 46) and, if necessary, video channel setting (pg. 45).

When the P/I button on the recorder/remote control is pressed for the first time to power on the recorder after you plug the mains power cord into a mains outlet, the Country Set display will appear on the TV screen and the recorder's front display panel. By simply selecting your country, the Auto Set Up function sets the tuner channels, clock, Guide Program numbers and video channel automatically.

• If you live in Belgium (BELGIUM) or Switzerland (SUISSE), you also need to select your area.

• Useful if you have connected the video recorder to your TV via RF connection (pg. 3). Video Channel (RF output channel) is the channel on which your TV receives picture and sound signals from the video recorder through the RF cable.

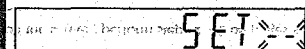
You can refer to the front display panel and/or the on-screen display to perform this procedure.

Before starting, make sure of the following:

- The TV aerial cable should be connected to the recorder.
- The recorder's mains power cord should be connected to a mains outlet. (pg. 3)
- If you want to use the on-screen display, the TV should be set to its AV mode (with AV connection pg. 3) or UHF channel 36 (with RF connection pg. 3).

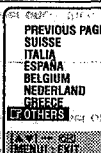
1 TURN ON THE RECORDER

Press P/I on the recorder or remote control. The Country Set display appears on the front display panel and/or on the screen:



NOTE:

If you have connected your TV to the recorder with RF connection and the on-screen display appearing on UHF channel 36 looks distorted, perform this procedure referring to the front display panel.



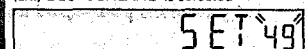
2 SELECT COUNTRY

If you are referring to the front display panel

Press Δ/∇ to select your international telephone country code of your country referring to the chart in the left column.

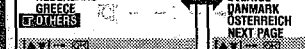
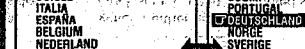
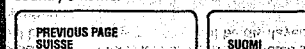
- If you have selected a country code other than 32 (BELGIUM) or 41 (SUISSE), go to step 4.
- If you have selected 32 (BELGIUM) or 41 (SUISSE), go to step 3.

(Ex.) DEUTSCHLAND is selected



If you are referring to the on-screen display

Press Δ/∇ to move the highlight bar (pointer) to your country's name.



- If you have selected a country other than BELGIUM or SUISSE, go to step 4.
- If you have selected BELGIUM or SUISSE, go to step 3.

3

SELECT LANGUAGE

Press OK. The Language Set display appears on the front display panel and/or on the screen.

If you are referring to the front display panel

Press Δ/∇ to select your language code.

Language Code	
ENGLISH	: 01
DEUTSCH	: 02
FRANCAIS	: 03
ITALIANO	: 04
CASTELLANO	: 05
NEDERLANDS	: 06
SVENSKA	: 07
NORSK	: 08
SUOMI	: 09
DANSK	: 10

(Ex.) DEUTSCH is selected for SUISSE

International telephone country code

Language code

If you are referring to the on-screen display

Press Δ/∇ to move the highlight bar (pointer) to the language of your choice.



(Ex.) DEUTSCH is selected

4

PERFORM AUTO-SET UP

Press OK.

"Auto" appears on the display panel and blinks; do NOT press any button on the recorder or remote control until the display panel shows either the display as illustrated in step 5 or "END".

- If "END" appears on the display panel, refer to page 6.
- If you are using the on-screen display, the AUTO SET screen will appear. As Auto Set Up progresses, the "■" mark on the screen moves from left to right.



NOTES:

- Auto channel set function takes place first; it assigns automatically all receivable stations in your area.
- Auto clock set function sets the clock automatically by reading the clock setting data from a station transmitting a PDC signal while auto channel set is being performed.
- During auto channel set, the recorder recognizes each station name of the detected stations and stores them in the recorder's memory; then automatically sets ShowView assigned Guide Program number for those stations according to the broadcast area.
- In the area where no TV station transmits a PDC signal, the recorder can perform neither auto clock set nor auto Guide Program number set.
- For RF connection users: The video recorder detects the channels which are not occupied by local stations and selects one channel automatically for your Video Channel that is located in the middle of more than 5 vacant channels.
- If there is a power cut, or if you press P/I or MENU while Auto Set Up is in progress, Auto Set Up will be interrupted; be sure to turn off the recorder power once and try again from step 1.

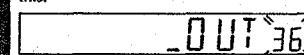
5

CONFIRM/SET VIDEO CHANNEL

If you have connected the video recorder to your TV via an RF cable only (RF connection)

The channel that is shown on the display panel is your Video Channel.

To view picture signals from the video recorder, set your TV to the Video Channel. — Refer to the instructions supplied with your TV set for how to do this.



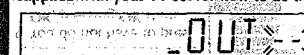
If you have connected the video recorder to your TV via both an RF cable and a 21-pin SCART cable (AV connection)

You do not need the video channel so you have to set the video channel to off.

Press TV PROG — until the display panel shows

"OUT" — to set the Video Channel to off.

To view picture signals from the video recorder, set your TV to its AV mode. — Refer to the instructions supplied with your TV set for how to do this.



6

FINISH AUTO SET UP

Press OK and refer to page 6 to check the results.

SELECT LANGUAGE

SELECT COUNTRY

PERFORM AUTO-SET UP

CONFIRM/SET VIDEO CHANNEL

FINISH AUTO SET UP

SELECT LANGUAGE

SELECT COUNTRY

PERFORM AUTO-SET UP

CONFIRM/SET VIDEO CHANNEL

FINISH AUTO SET UP

SELECT LANGUAGE

SELECT COUNTRY

PERFORM AUTO-SET UP

CONFIRM/SET VIDEO CHANNEL

FINISH AUTO SET UP

SELECT LANGUAGE

SELECT COUNTRY

PERFORM AUTO-SET UP

CONFIRM/SET VIDEO CHANNEL

FINISH AUTO SET UP

SELECT LANGUAGE

SELECT COUNTRY

PERFORM AUTO-SET UP

CONFIRM/SET VIDEO CHANNEL

FINISH AUTO SET UP

Auto Set Up results appear on the front display panel

A 20:00

B 1

C ---

When both auto channel set and auto clock set have been completed successfully the correct current time will be displayed after the OK button is pressed in step 6 on page 5.

When auto channel set has been completed successfully but auto clock set has not, "1" (channel position) will be displayed after the OK button is pressed in step 6 on page 5.

When neither auto channel set nor auto clock set has been completed successfully, "---" will be displayed.

You can check if the Guide Program numbers have been set correctly when you perform ShowView Timer Programming (pg. 26); if the correct channel position number is displayed in step 3, this confirms that the Guide Program number for the ShowView number you enter in step 2 has been set correctly.

A If both auto channel set and auto clock set have been performed successfully:

- 1 Turn on the TV and select its VIDEO channel or AV mode, then make sure that all necessary stations have been stored in the recorder's memory by using the TV PROG button(s).
 - If station names (ID pg. 51) have also been stored in the recorder's memory, the station name will be displayed at the top left corner of the screen for about 5 seconds when the recorder is tuned to a different station.
 - If you want to set the tuner manually such as to add or skip channels, to change channel positions, or to set or change station names, see pages 48-52.

B If auto channel set has succeeded but auto clock set has not:

- 1 Turn on the TV and select its VIDEO channel or AV mode, then make sure that all necessary stations have been stored in the recorder's memory by using the TV PROG button(s).
 - If station names (ID pg. 51) have also been stored in the recorder's memory, the station name will be displayed at the top left corner of the screen for about 5 seconds when the recorder is tuned to a different station.
 - If you want to set the tuner manually such as to add or skip channels, to change channel positions, or to set or change station names, see pages 48-52.
- 2 Perform "Clock Set" on page 54.

C If both auto channel set and auto clock set have failed:

- 1 Make sure the TV aerial cable is connected properly to the recorder and turn off the recorder power once, then turn the recorder power back on again.
 - The Country Set display appears on the front display panel and/or on the screen; perform steps 2-6 on pages 4-5 again.

IMPORTANT

- In certain reception conditions, station names may not be stored correctly, and auto Guide Program Number Set may not work properly. If the Guide Program numbers are not set properly, when you timer-record a TV programme using ShowView, the recorder will record a TV programme of a different station. When programming the timer using ShowView, be sure to check whether the channel position on which your recorder receives the broadcasting station you wish to record is selected (pg. 26, "ShowView Timer Programming").
- Your video recorder memorizes all detected stations even if reception of some of them is poor. In these cases picture quality may be poor. To delete those stations with an unacceptable picture, "Delete A Channel" on page 49.
- For RF connection users: In certain reception conditions, the Video Channel may not be set correctly and interference may appear in the TV picture while the recorder's power is on. Set your Video Channel manually, pg. 45, "Video Channel Set".

INFORMATION

Language for the on-screen display

Auto Set Up also selects the language automatically for the on-screen display depending on the Country setting you have made in step 2 on page 4 (unless you have selected BELGIUM or SUISSE), as shown below:

SUOMI	SUOMI	SVERIGE	SVENSKA	ESPAÑA	CASTELLANO
PORTUGAL	ENGLISH	DANMARK	DANSK	NEderland	NEderlandS
DEUTSCHLAND	DEUTSCH	ÖSTERREICH	DEUTSCH	GREECE	ENGLISH
NORGE	NORSK	ITALIA	ITALIANO	OTHERS	ENGLISH

If you want to change the language setting manually, "Language" on page 7.

Just Clock

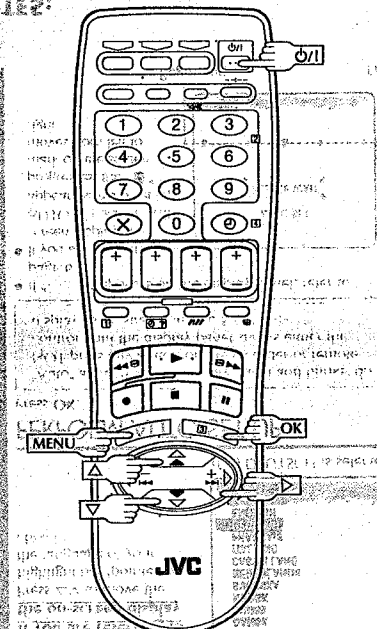
Your recorder is equipped with the Just Clock function which provides accurate time keeping through automatic adjustments at regular intervals, by reading data from a PDC signal. If you want to take advantage of this function, simply set it to "ON".

"Just Clock" on page 54.

Language

Turn on the TV and select the VIDEO channel (or AV mode).

NOTES:



This recorder offers you the choice to view on-screen messages in 10 different languages. Though Auto Set Up selects the language automatically (pg. 6), you can change the language setting manually using this procedure as required.

TURN ON THE RECORDER

Press **ON**.

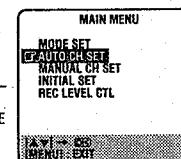
ACCESS MAIN MENU

Press **MENU**.

ACCESS COUNTRY SET SCREEN

Press Δ to move the highlight bar (pointer) to "AUTO CH SET", then press **OK** or **D**.

- "REC LEVEL CTL" appears only with the HR-DD858E and HR-DD858EH.



SELECT COUNTRY

Press Δ to move the highlight bar (pointer) to your country's name, then press **OK** or **D**.

SELECT LANGUAGE

Press Δ to move the highlight bar (pointer) to the language of your choice.

- You do not have to press **OK**; pressing **OK** starts Auto Channel Set.



RETURN TO NORMAL SCREEN

Press **MENU**.

Press **MENU**.

Press **MENU**.

Press **MENU**.

Press **MENU**.

Press **MENU**.

Press **MENU**.

Press **MENU**.

Press **MENU**.

Press **MENU**.

Press **MENU**.

Press **MENU**.

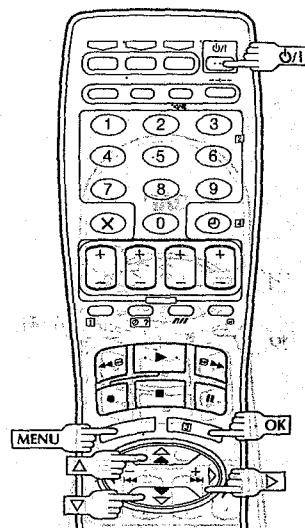
Press **MENU**.

Press **MENU**.

Press **MENU**.

On-Screen Displays

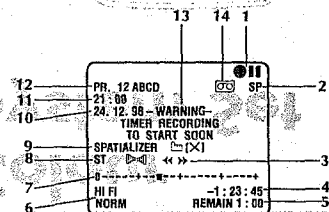
Turn on the TV and select the VIDEO channel (or AV mode).



NOTES:

- When you use this recorder as the player for editing, be sure to set "O.S.D." to "OFF" before starting.
- During playback, the operation mode indicators may be disturbed depending on the type of tape being used.

The superimposed indication on the TV screen tells you what the recorder is doing.



You can choose whether or not to have various operational indicators appear on screen, by setting this function ON or OFF. Messages appear in the selected language (pg. 6 or 7).

TURN ON THE RECORDER

Press **ON**.

ACCESS MAIN MENU SCREEN

Press **MENU**.

ACCESS MODE SET SCREEN

Move the highlight bar (pointer) to "MODE SET" by pressing **Δ**, then press **OK** or **▶**.

ENABLE/DISABLE ON-SCREEN DISPLAY

The default setting is "ON", so if you want on-screen displays, leave the setting as it is and go to step 5. If you don't want the displays to appear, press **Δ** to move the highlight bar (pointer) to "O.S.D.", and press **OK** or **▶** to set "O.S.D." to "OFF".

• "POWER SAVE" appears only with the HR-J758E and HR-DD858E.

• "TIME SCAN AUDIO" appears only with the HR-DD858E and HR-DD858EH.

RETURN TO NORMAL SCREEN

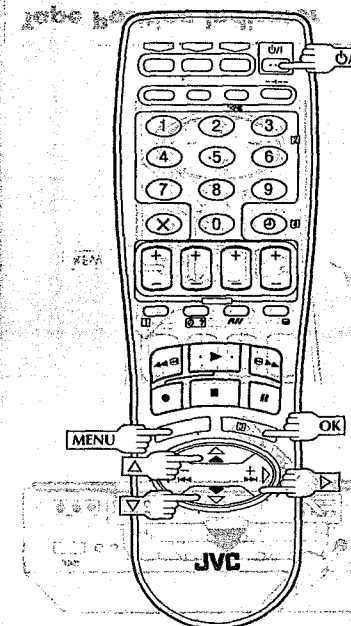
Press **MENU**.

5

- 1- Operation mode indicators
- 2- Tape speed SP/LP/EP (EP is for NTSC playback only)
- 3- Tape direction
- 4- Counter display
- 5- Tape remaining time indicator (pg. 21)
- 6- Audio mode display (pg. 16)
- 7- Tape position indicator (pg. 11)
- 8- Type of Broadcast (pg. 22)
- 9- Spatializer indicator (pg. 16)
- 10- Current day/month/year
- 11- Clock display
- 12- Channel position number and station name/Aux. indicator (L-1, L-2 or F-1)
- 13- Timer warning display (pg. 27, 29)
- 14- Cassette loaded mark

Power Save Mode (HR-J758E and HR-DD858E only)

Turn on the TV and select the VIDEO channel (or AV mode).



You can reduce the power consumption while the recorder is turned off.

TURN ON THE RECORDER

Press **ON**.

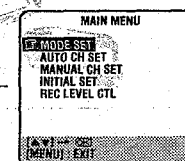
ACCESS MAIN MENU SCREEN

Press **MENU**.

ACCESS MODE SET SCREEN

Press **Δ** to move the highlight bar (pointer) to "MODE SET", then press **OK** or **▶**.

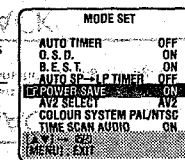
• "REC LEVEL CTL" appears only with the HR-DD858E.



SELECT POWER SAVE MODE

Press **Δ** to move the highlight bar (pointer) to "POWER SAVE", then press **OK** or **▶** to set to "ON".

• "TIME SCAN AUDIO" appears only with the HR-DD858E.



RETURN TO NORMAL SCREEN

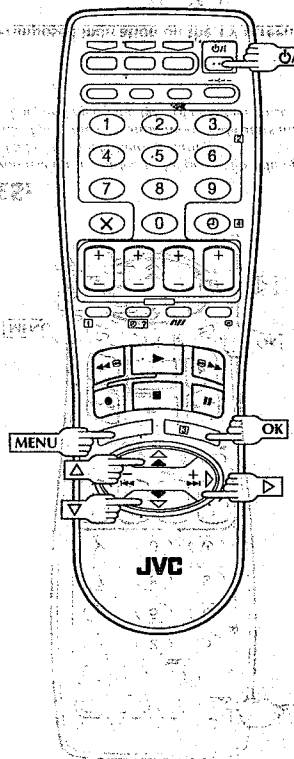
Press **MENU**.

5

NOTES:

- During Power Save, the display panel will be turned off.
- The Just Clock function (pg. 54) does not work while the Power Save mode is engaged.
- While the recorder is in the Power Save mode, the picture may be distorted momentarily when you turn on/off the recorder.
- Power Save does not work when the recorder is in the Timer mode, the recorder's power is turned off after timer-recording (or Instant Timer Recording) the Auto Satellite Prog Recording mode is engaged (pg. 32).
- "AV2 SELECT" is set to "DECODER" (pg. 37).

Colour System Set



NOTES:

About NTSC Playback

- Some TVs shrink the picture vertically and place black bars at the top and bottom of the screen. This is not a malfunction on the part of either the video recorder or the TV.
- The picture may roll up and down. This can be corrected using the V-HOLD control found on some TVs. (This cannot be corrected if the TV does not have a V-HOLD control.)
- The counter and tape remaining time readings will be incorrect.
- During search, still, or frame-by-frame playback, the picture will be distorted, and there may be a loss of colour.
- Depending on the type of TV, the top and bottom portions of superimposed displays may be cut off during NTSC playback.

You can play back PAL, NTSC and MESECAM tapes, or record PAL and SECAM* signals on this recorder. Follow the procedure below to select the appropriate colour system.

* SECAM signals will be recorded as MESECAM on this recorder; MESECAM is the designation for tapes with SECAM signals that have been recorded on a MESECAM-compatible PAL video cassette recorder.

TURN ON THE RECORDER

Press **ON**. MESECAM tape.

POWER SAVE appears only with the HR-J758E and HR-DD858E.

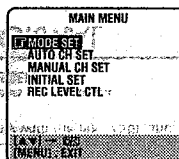
ACCESS MAIN MENU SCREEN

Press **MENU**.

ACCESS MODE SET SCREEN

Press **Δ** to move the highlight bar (pointer) to **MODE SET**, then press **OK** or **▶**.

- "REC LEVEL CTL"** appears only with the HR-DD858E and HR-DD858EH.



SELECT COLOUR SYSTEM MODE

Press **Δ** to move the highlight bar (pointer) to **COLOUR SYSTEM**, then press **OK** or **▶** to select the appropriate colour system.



- a- PAL/NTSC: To record PAL signals, or play back a PAL or NTSC tape.
- b- MESECAM: To record SECAM signals, or play back a MESECAM tape.

- "POWER SAVE"** appears only with the HR-J758E and HR-DD858E.
- "TIME SCAN AUDIO"** appears only with the HR-DD858E and HR-DD858EH.

RETURN TO NORMAL SCREEN

Press **MENU**.

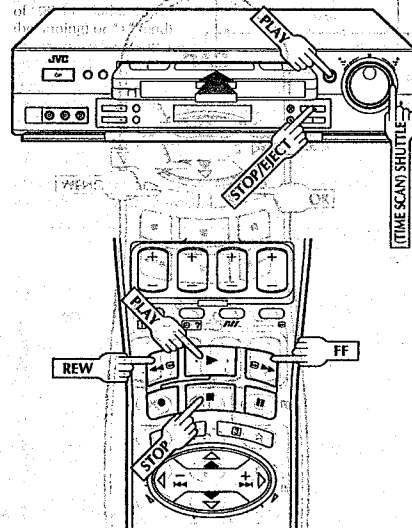
TURN ON THE RECORDER

Basic Playback

The tape position indicator

Turn on the TV and select the VIDEO channel (or AV mode).

press **FF**, **REW** or perform an Index Search. The position of the beginning or the end



The easiest, most basic operation possible with your video recorder is tape playback. Already-recorded signals on a video tape are read by your video recorder and displayed on your TV just like a TV programme.

1 LOAD A CASSETTE

Make sure the window side is up, the rear label side is facing you and the arrow on the front of the cassette is point toward the recorder. Don't apply too much pressure when inserting.

- The recorder power comes on automatically and the counter is reset to 0:00:00.
- If the record safety tab has been removed, playback begins automatically.

2 FIND PROGRAMME START POINT

If the tape is advanced past the start point, press **REW** or turn the (TIME SCAN) SHUTTLE ring to the left. To go forward, press **FF** or turn the (TIME SCAN) SHUTTLE ring to the right.

- The HR-J758E/EH have a standard SHUTTLE ring and the HR-DD858E/EH have a TIME SCAN SHUTTLE ring.

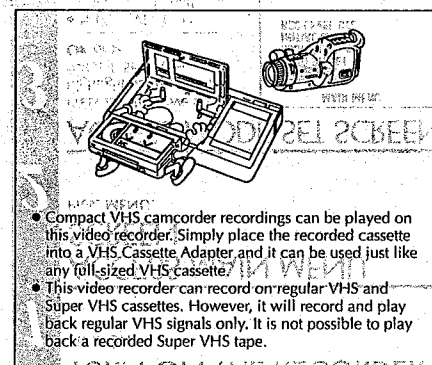
3 START PLAYBACK

Press **PLAY**. "BEST" appears blinking in the recorder's display panel during automatic tracking. (pg. 24)

4 STOP PLAYBACK

Press **STOP** on the remote or **STOP/EJECT** on the recorder's front panel. Then press **STOP/EJECT** to remove the cassette.

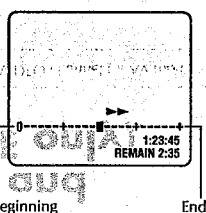
Usable cassettes



- Compact VHS camcorder recordings can be played on this video recorder. Simply place the recorded cassette into a VHS Cassette Adapter and it can be used just like any full-sized VHS cassette.
- This video recorder can record on regular VHS and Super VHS cassettes. However, it will record and play back regular VHS signals only. It is not possible to play back a recorded Super VHS tape.

Tape Position Indicator

The tape position indicator appears on screen when, from the Stop mode, you press **FF**, **REW** or perform an Index Search. The position of "■" in relation to "0" (beginning) or "+" (end) shows you where you are on the tape.

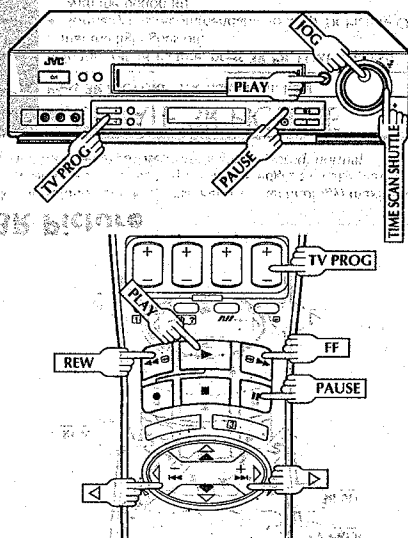


"O.S.D." (pg. 8) must be set to "ON", or the indicator will not appear.

NOTE:

Depending on the type of tape used, there may be times when the indication is not correct.

Playback Features



High-Speed (Turbo) Search (For HR-DD858E/EH)

1 ACTIVATE HIGH-SPEED SEARCH

During playback or still picture, press FF for forward high-speed search, or REW for reverse high-speed search.

To resume normal playback, press PLAY.

NOTE:

For short searches, press and hold FF or REW for over 2 seconds during playback or still picture. When released, normal playback resumes.

ATTENTION

- Picture may not appear during high-speed search with an LP-recorded tape.
- In the high-speed search, still, or frame by frame playback mode, the picture may be distorted, and there may be a loss of colour.

Still Picture/Frame-By-Frame Playback (For HR-DD858E/EH)

1 PAUSE DURING PLAYBACK

Press PAUSE. If there is vertical jitter, use the TV PROG buttons to correct the picture.

- During still picture, the sound from the previous 3 seconds (approx.) will be played back repeatedly (provided there was at least 6 seconds of normal playback prior to engaging the still-picture mode).
- "TIME SCAN AUDIO" must be set to "ON", or the sound will not be heard. (pg. 19)

2 ACTIVATE FRAME-BY-FRAME PLAYBACK

Turn the JOG dial to the right for forward frame-by-frame playback, or to the left for reverse frame-by-frame playback.

OR
Press PAUSE
OR
Press < or >

To resume normal playback, press PLAY.

Slow Motion (For HR-DD858E/EH)

1 ACTIVATE SLOW-MOTION PLAYBACK

Turn the TIME SCAN SHUTTLE ring to the left or press < during playback to decrease speed in the forward direction. To play in reverse slow-motion (and in reverse play mode), continue to turn the TIME SCAN SHUTTLE ring to the left or press < after selecting all the forward direction slow-motion modes.

OR
During still picture, turn the TIME SCAN SHUTTLE ring to the right for forward slow motion, or to the left for reverse slow motion.

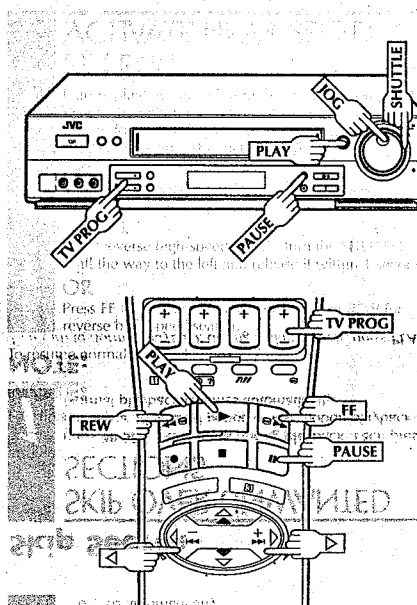
OR
During still picture, press and hold PAUSE for 2 seconds, then release. Press and release again to return to still picture.

OR
During still picture, press and hold < or >. Release to return to still picture.

To resume normal playback, press PLAY.

(For HR-J758E/EH)

Variable-speed search



High-Speed (Turbo) Search (For HR-J758E/EH)

1 ACTIVATE HIGH-SPEED SEARCH

During playback or still, turn the SHUTTLE ring all the way to the right for forward high-speed search, or to the left for reverse high-speed search. Releasing SHUTTLE resumes still picture playback.

OR
For forward high-speed search, turn the SHUTTLE ring all the way to the right and release it within 1 second.

For reverse high-speed search, turn the SHUTTLE ring all the way to the left and release it within 1 second.

OR
Press FF for forward high-speed search, or REW for reverse high-speed search.

To resume normal playback, press PLAY.

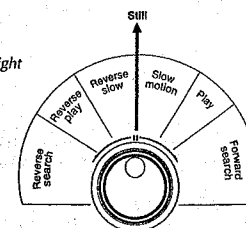
NOTE:

For short searches, press and hold FF or REW for over 2 seconds during playback or still picture. When released, normal playback resumes.

Variable-speed search

NOTE:

Refer to the SHUTTLE ring illustration to the right as you read the following procedures.



Still Picture/Frame-By-Frame Playback (For HR-J758E/EH)

1 PAUSE DURING PLAYBACK

Press PAUSE. If there is vertical jitter, use the TV PROG buttons to correct the picture.

2 ACTIVATE FRAME-BY-FRAME PLAYBACK

Turn the JOG dial to the right for forward frame-by-frame playback, or to the left for reverse frame-by-frame playback.

OR
Press PAUSE
OR
Press < or >

To resume normal playback, press PLAY.

Slow Motion (For HR-J758E/EH)

1 ACTIVATE SLOW-MOTION PLAYBACK

During playback or still, turn the SHUTTLE ring to the right for forward slow motion, or to the left for reverse slow motion (refer to the illustration above).

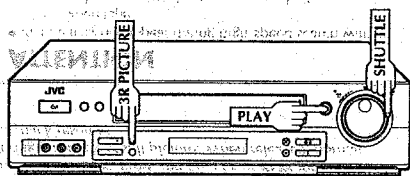
OR
During still picture, press and hold PAUSE for 2 seconds, then release. Press and release again to return to still picture.

OR
During still picture, press and hold < or >. Release to return to still picture.

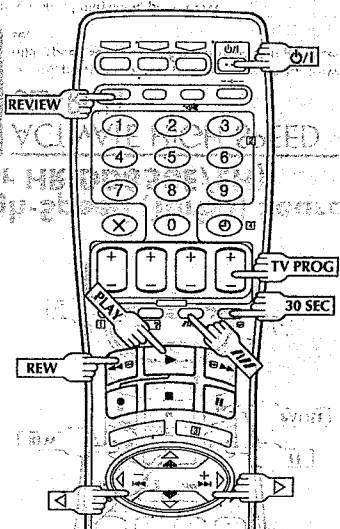
To resume normal playback, press PLAY.

ATTENTION

- In the search, still, slow-motion or frame-by-frame playback mode:
- the picture will be distorted;
- the noise bars will appear;
- there will be a loss of colour with an LP-recorded tape.



NOTE:



3R Picture

3R (= Resolution and Response Recovery technology) maximises sense of resolution and sharpens image edges to make playback picture look better focused.

1 ACTIVATE 3R PICTURE

Press **3R PICTURE**. The button will light.

- To turn off 3R Picture, press **3R PICTURE** again so that the light goes off.
- Normally it is recommendable to keep 3R Picture ON (with the button lit).
- Depending on the type of tape used, picture quality may be better with 3R Picture set to off.
- If you use this recorder as the player for editing, be sure to turn off 3R Picture before starting.
- The setting will remain effective even though you turn on/off the recorder.

Variable-Speed Search (For HR-J758E/EH)

If you own the HR-DD858E/EH, see page 18.

1 ACTIVATE VARIABLE-SPEED SEARCH

During playback or still, turn the **SHUTTLE** ring to the right for forward variable-speed search, or to the left for reverse variable-speed search (refer to the illustration on page 13).

OR

During playback, press **<** or **>**.

- The more times you press, the faster the playback picture moves.
- To decrease speed, press the button for the opposite direction.

To resume normal playback, press **PLAY**.

NOTE:

In the search, still, or frame by frame playback mode, the picture will be distorted, and there will be a loss of colour.

Manual Tracking

Your video recorder is equipped with automatic tracking control. During playback, you can override this and adjust the tracking manually by pressing the **TV PROG** buttons.



1 OVERRIDE AUTOMATIC TRACKING

Press **||||** on the remote to engage manual tracking.

2 ADJUST TRACKING MANUALLY

Press **TV PROG** + or - to adjust tracking.

3 RETURN TO AUTOMATIC TRACKING

Press **||||** on the remote to re-engage automatic tracking.

NOTE:

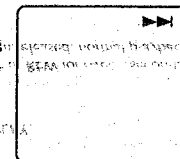
When a new tape is inserted, the recorder enters the automatic tracking mode automatically.

Index Search

Your recorder automatically marks index codes at the beginning of each recording. This function gives you quick access to any one of 9 index codes in either direction.

NOTE:

Before starting, make sure the recorder is in the Stop mode.

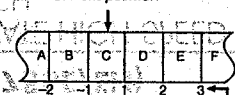


1 ACTIVATE INDEX SEARCH

Press **<** or **>** (or **<<** or **>>**) "1" or "2" or "3" or "4" or "5" or "6" or "7" or "8" or "9" is displayed on screen and search begins in the corresponding direction.

- To access index codes 2 through 9, press **<** or **>** repeatedly until the correct index number is displayed. Ex: To locate the beginning of B from the current position, press **<** twice.
- To locate the beginning of D from the current position, press **>** once.

Current position



Index number

- When the specified index code is located, playback begins automatically.

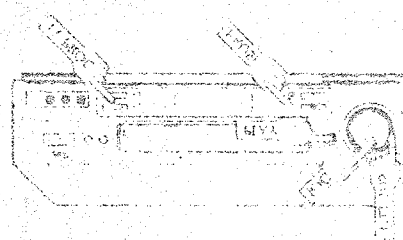
Skip Search

1 SKIP OVER UNWANTED SECTIONS

Press **30-SEC** 1 to 4 times during playback. Each press initiates a 30-second period of fast-motion playback. Normal playback resumes automatically.

NOTE:

To return to normal playback during a Skip Search, press **PLAY**.



Instant ReView

Simply by pressing a single button, the recorder power comes on, rewinds, and begins playback of the last timer-recorded programme. If you have several programmes recorded, you can easily access any of them.

NOTE:

Before starting, make sure that the recorder is off and that the Timer mode is disengaged.

1 ACTIVATE INSTANT REVIEW

Press **REVIEW**. The recorder power comes on and the recorder searches for the index code indicating the start of the last timer-recorded programme. Once it's found, playback begins automatically.

- The front display panel tells you how many programmes have been timer-recorded. If you have, for example, 3 programmes, "REVIEW" and "3" appear and blink. To watch the first of the 3 programmes, press **REVIEW** three times. The recorder searches and begins playback automatically. You can access a programme as far as 9 index codes away from the current tape position.

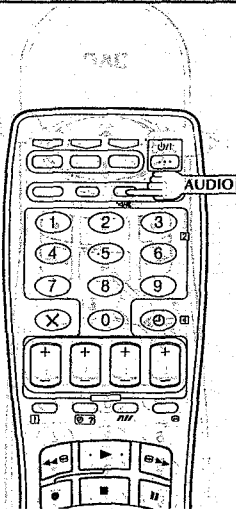
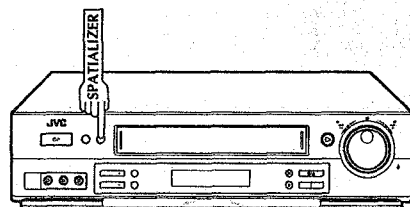
NOTES: (For HR-J758E/EH)

- Instant ReView is not possible while the recorder is in the Timer mode.
- The number of recorded programmes will not be displayed on the front display panel after Auto-Satellite Prog recording (pg. 32).

Next Function Memory

You can set your recorder's power to go off automatically after the tape is fully rewound. Before starting, make sure the recorder is in the Stop mode. For Automatic Power Off After Tape Rewind... press **REW**, then press **U/I** within 2 seconds.

15 EN



Spatializer®

This feature expands sound field when you play back any stereo source or view a stereo programme while recording it.
*Spatializer® has no effect on recording quality.

1 ACTIVATE SPATIALIZER®

Press **SPATIALIZER**; the current setting will be displayed on the screen for about 5 seconds. Pressing **SPATIALIZER** while the screen shows the display changes the setting.

- To view a stereo programme such as movies or music, select **"SPATIALIZER ON"** to create more spacious sound.
- To view a monaural programme, select **"SPATIALIZER OFF"** which simulates a stereo effect.
- Select **"SPATIALIZER OFF"** to turn off Spatializer® if the sound becomes unnatural with either **"SPATIALIZER ON"** or **"SPATIALIZER ST"** selected.
- If your TV is equipped with 3D-PHONIC and if you use both Spatializer® and 3D-PHONIC at the same time, the sound may become unnatural; set either function to "OFF".
- The setting will remain effective even though you turn on/off the recorder.

NOTES:

- Spatializer® is effective only with a stereo TV.
- You can change the Spatializer® setting even though "O.S.D." is set to "OFF".
- The setting cannot be changed during search, still, frame-by-frame playback or slow motion mode.
- When this recorder is used as the player for editing, the recorded audio will correspond to the Spatializer® setting.

Soundtrack Selection

Your video recorder is capable of recording three soundtracks (HI-FI L, HI-FI R and NORM) and will play back the one you select.

During Playback

Pressing **AUDIO** on the remote control changes the soundtrack being played back as follows:

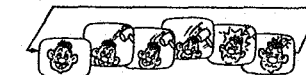
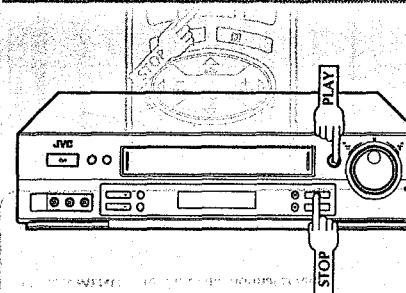
TRACK	USE
Recorder's Front Panel	On-Screen Display
[HI-FI L] + [HI-FI R]	HI-FI L R
[HI-FI L]	HI-FI L
[HI-FI R]	HI-FI R
[NORM]	NORM
[HI-FI L] + [HI-FI R] + [NORM]	HI-FI L R NORM

NOTES:

- [HI-FI L] + [HI-FI R] should normally be selected. In this mode, HI-FI stereo tapes are played back in stereo, and the normal audio track is played back automatically for tapes with only normal audio.
- For instructions on recording stereo and bilingual programmes, refer to page 22.
- "O.S.D." must be set to "ON" or the on-screen displays will not appear (pg. 8).

Repeat Playback

Your video recorder can automatically play back the whole tape 50 times repeatedly.



1 START PLAYBACK

Press **PLAY**.

2 ACTIVATE REPEAT PLAYBACK

Press **PLAY** and hold for over 5 seconds, then release.

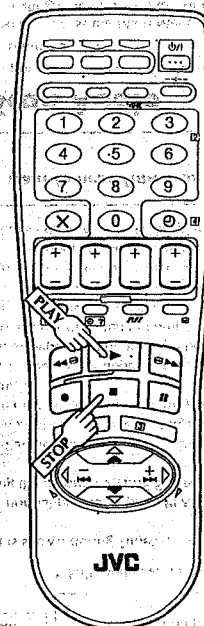
- The Play indicator (▶) on the display panel blinks slowly.
- The tape plays 50 times automatically, and then stops.

3 STOP PLAYBACK

Press **STOP** at any time to stop playback.

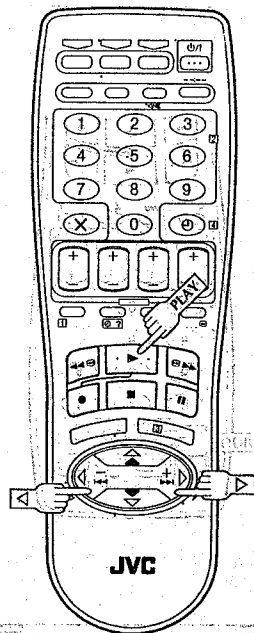
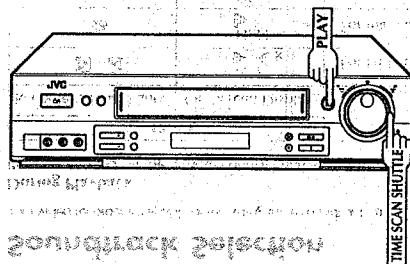
NOTE:

Pressing **PLAY**, **REW**, **FF** or **PAUSE** also stops Repeat Playback.



TimeScan

(HR-DD858E/EH only)



Your recorder is equipped with the TimeScan function. TimeScan allows noise free pictures to be displayed on your TV screen in the forward and reverse search modes. Audio will be played back at normal speed during the TimeScan modes (pg. 19). TimeScan allows you to view a programme in search mode while listening to the audio.

NOTES:

- "TIME SCAN AUDIO" must be set to "ON", or the sound will not be heard in TimeScan mode. (pg. 19)
- The audio will not synchronize with the video in TimeScan modes.
- In Pause mode 3 seconds (approx.) of audio will be played back repeatedly. (pg. 12)
- In TimeScan search modes some of the audio information will not be played so that the audio can keep up with the video.
- Slow motion is not possible with TimeScan.

Audio signal during TimeScan



Sound of ①, ③ and ⑤ is heard.
Sound of ② and ④ is not heard.
Output audio signal is normal (monaural) sound.

Variable-Speed Search

(HR-DD858E/EH only)

1 ACTIVATE VARIABLE-SPEED SEARCH

During playback or still, turn the recorder's TIME SCAN SHUTTLE ring. It remains at that position even after you release it. Each time it passes a click position, the playback speed changes. (Refer to the chart on pg. 19 for playback speeds).

OR

During playback, press < or >.

- The more times you press, the faster the playback picture moves.
- To decrease speed, press the button for the opposite direction.

(Refer to the chart on pg. 19 for playback speeds).

To resume normal playback, press PLAY.

TimeScan

Names of special-effects playback

Speed SP

Speed LP

Audio output

Reverse				Forward			
Search	Play	Slow-Motion	*Still	Slow-Motion	Play	Search	
-9x -7x -5x -3x	-1x	-1/6x -1/18x	0	1/18x 1/6x	1x	2x 3x 5x 7x 9x	
-7x -5x -3x	-1x	-1/6x -1/18x	0	1/18x 1/6x	1x	2x 3x 5x 7x 9x	
Audio is output.				Audio is not output.			

* Still mode cannot be engaged using the remote control's < or > button.

- The speed is shown during TimeScan in the upper right corner of the TV screen for approx. 5 seconds. (The display may be distorted.)
- To resume normal playback, press PLAY.
- When using the recorder's TIME SCAN SHUTTLE ring, the playback speed may not change in the correct step if it is turned too fast.
- Picture and audio may become distorted when the recording speed changes. When this happens, resume normal playback once, and then try using TimeScan again.
- The picture may be noisy or there may be a loss of colour when you change the playback speed. (More noise will appear with LP recordings.)
- Noise may appear or the upper part of the picture may be distorted during still, frame-by-frame playback, 2x search of LP recordings, or depending on the tape being used.
- Picture may appear distorted in comparison to normal playback.
- In TimeScan mode there will be a time lag between the video and the audio and noise may appear in the audio signal.
- TimeScan sound quality will differ in comparison to normal playback.
- When the playback direction is reversed, it takes approximately 6 seconds until sound is heard.
- Picture will be monochrome with an LP-recorded MESECAM tape during TimeScan.
- TimeScan does not work with NTSC playback.

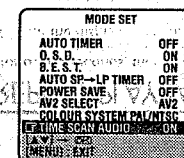
If you don't want to hear TimeScan audio, set "TIME SCAN AUDIO" to "OFF". (See below).

TimeScan Audio

The audio output can be set ON/OFF during TimeScan. Select ON/OFF as required.

* The default setting is "ON".

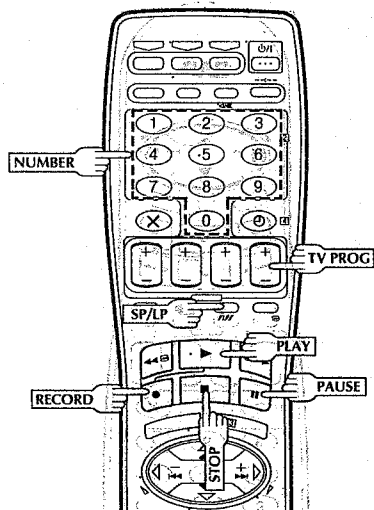
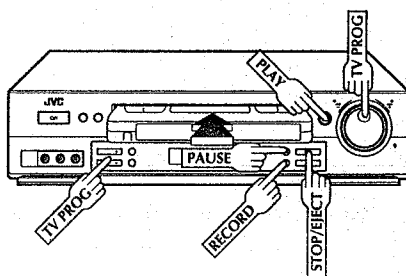
- 1 Press MENU to access the Main Menu screen.
- 2 Move the highlight bar (pointer) to "MODE SET" by pressing Δ or ∇ , then press OK or $\rightarrow$.
- 3 Move the highlight bar (pointer) to "TIME SCAN AUDIO" by pressing Δ or ∇ , then press OK or $\rightarrow$ to select "ON" or "OFF".
- 4 Press MENU to return to the normal screen.



"POWER SAVE" appears only with the HR-DD858E.

Basic Recording

Turn on the TV and select the VIDEO channel (or AV mode).



Recording Resume Function

If there is a power outage during recording (or Instant Timer Recording or timer recording), the recording will resume automatically when power is restored to the recorder unless the recorder's memory backup has expired.

TV signals being received by the recorder's built-in tuner can be recorded onto a video tape. You can "capture" a TV programme using your video recorder.

LOAD A CASSETTE

Insert a cassette with the record safety tab intact.

- The counter is reset to 0:00:00 and the recorder power comes on automatically.

CHOOSE A PROGRAMME

Press **TV PROG** +/- or the **NUMBER** keys to select the channel you wish to record.

- The **TV PROG** dial can also be used to select a channel.

SET TAPE SPEED

Press **SP/LP** (). Check the **SP/LP** indicator on the recorder display panel to confirm the selected tape speed.

- The **HR-J758E/EH** owners can use the **SP/LP** button on the recorder's front panel as well.

START RECORDING

Press and hold **RECORD** and press **PLAY** on the remote control, or press **RECORD** on the recorder.

B.E.S.T. takes place at the beginning of both the first SP and the first LP recording after inserting the cassette (pg. 24).

PAUSE/RESUME RECORDING

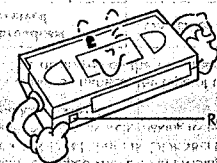
Press **PAUSE**. Press **PLAY** to resume recording.

STOP RECORDING

Press **STOP** on the remote control or **STOP/EJECT** on the recorder. Then press **STOP/EJECT** to remove the cassette.

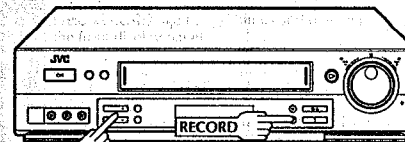
Accidental erasure prevention

- To prevent accidental recording on a recorded cassette, remove its safety tab. To record on it later, cover the hole with adhesive tape.



Record safety tab

Recording Features



You can only perform ITR using the **RECORD** button on the recorder's front panel.

Instant Timer Recording (ITR)

This easy method lets you record for from 30 minutes to 6 hours (selectable in 30-min. increments), and shuts the recorder off after recording is finished.

START RECORDING

Press **RECORD** on the recorder.

ENGAGE ITR MODE

Press **RECORD** again. "O" blinks and 0:30 appears on the front display panel.

SET RECORDING DURATION

If you want to record for more than 30 minutes, press **RECORD** to extend the time. Each press extends recording time by 30 minutes.

NOTE:

You can only perform ITR using the **RECORD** button on the recorder's front panel.

Record One Programme While Watching Another

If your recorder is connected to the TV via AV connection, ... press **TV/VCR**. The recorder's VCR indicator and the TV broadcast being recorded disappear.

SELECT CHANNEL TO WATCH

Once recording is in progress, all you need to do is to set the channel controls on the TV for the station you wish to view.

- The programme selected with the TV's channel controls appears on the TV screen while the one selected with the recorder's **TV PROG** buttons is recorded on the tape.
- If a decoder is connected to the recorder (pg. 43), you can select a scrambled channel as well with the TV channel controls.

Elapsed Recording Time Indication

You can check the exact time of a recording.

SET COUNTER DISPLAY

Press until a counter reading appears on the display panel.

- The **HR-J758E/EH** owners can use the **DISPLAY** button on the recorder's front panel as well.

RESET COUNTER

Press **0000** before starting recording or playback.

- The counter is reset to "0:00:00" and shows the exact elapsed time as the tape runs.

Tape Remaining Time

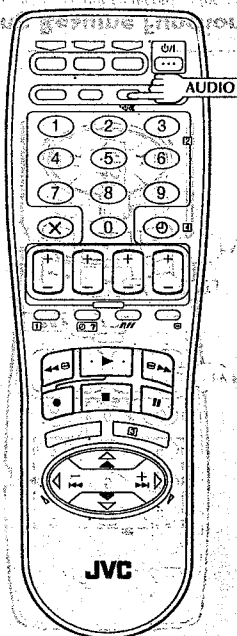
DISPLAY REMAINING TIME

Press until the time remaining on the tape appears.

- The display panel shows the tape remaining time with " " displayed.
- By pressing the button, you can change the display to show the counter reading, channel position, clock time or tape remaining time.
- *channel position is not displayed during playback.*
- The **HR-J758E/EH** owners can use the **DISPLAY** button on the recorder's front panel as well.

NOTE:

Depending on the type of tape used, there may be times when the tape remaining time reading may not appear right away, or is not correct. may sometimes appear, or the display may blink on occasion.



Receiving Stereo And Bilingual Programmes

Your recorder is equipped with a Sound-Multiplex decoder (A2) and, if you own the HR-J758EH or HR-DD858EH, a Digital stereo sound decoder (NICAM) as well, making reception of stereo and bilingual broadcasts possible.

When the channel is changed, the type of broadcast being received will be displayed on the TV-screen for a few seconds.

Type of Broadcast Being Received	On-screen Display
A2 Stereo*	ST
A2 Bilingual	BI
Regular Monaural	(none)
*NICAM Stereo	ST NICAM
*NICAM Bilingual	BI NICAM
*NICAM Monaural	NICAM

*Available with HR-J758EH or HR-DD858EH only.

- To listen to a stereo programme, press **AUDIO** until "ST" and "BI" appear on the front display panel or "HIFI L" or "HIFI R" appears on the screen.
- To listen to a bilingual programme, press **AUDIO** until "BI" or "HIFI L" or "HIFI R" appears on the front display panel, or "HIFI L" or "HIFI R" appears on the screen (as required).
- To listen to the Standard (regular monaural) audio while receiving a NICAM broadcast, press **AUDIO** until "NORM" appears on the front display panel or on the screen. (HR-J758EH or HR-DD858EH only)

NOTE:

"O.S.D." must be set to "ON" or the on-screen displays will not appear (pg. 8).

To Record Stereo And Bilingual Programmes (A2)

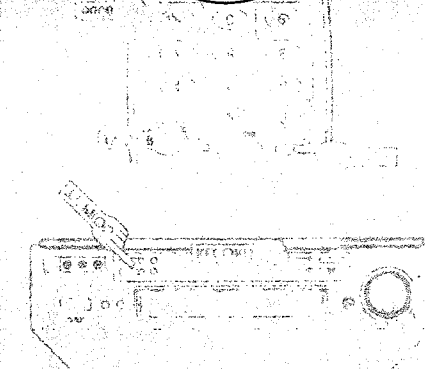
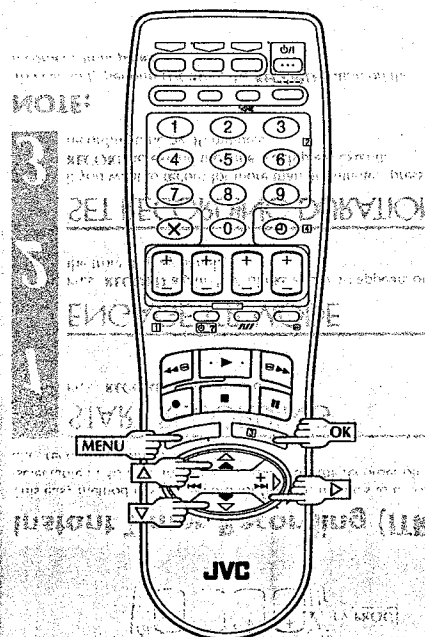
- Stereo programmes are automatically recorded in stereo on the Hi-Fi audio track (with the normal audio track recording mixed L and R channel sound).
- Bilingual programmes are automatically recorded in bilingual on the Hi-Fi audio track. The main soundtrack will be recorded on the normal audio track.

To Record NICAM Stereo And Bilingual Programmes (HR-J758EH or HR-DD858EH only)

The NICAM audio programme will be recorded on the Hi-Fi audio track, and the Standard audio programme on the normal audio track.

NOTES:

- If the quality of stereo sound being received is poor, the broadcast will be received in monaural with better quality.
- Before playing back a programme recorded in stereo, or a bilingual programme, refer to "Soundtrack Selection" (pg. 16).



Features
Recording

Hi-Fi Audio Recording Level Control (HR-DD858EH/EH only)

Your recorder allows manual adjustment of the Hi-Fi audio recording level. Normally the preset audio recording level is satisfactory, but if the sound you are going to record is too loud or too low, adjust the audio recording level while referring to the recorder's audio level meters.

ACCESS MAIN MENU SCREEN

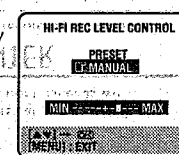
Press **MENU**.

ACCESS HI-FI REC LEVEL CONTROL SCREEN

Press **Δ** or **▽** to move the highlight bar (pointer) to "REC LEVEL CTL", then press **OK** or **▶**.

SELECT MODE

Move the highlight bar (pointer) to "MANUAL" by pressing **Δ** or **▽**, then press **OK** or **▶**.



ADJUST AUDIO RECORDING LEVEL

Press **Δ** or **▽**.

- Press **Δ** or **▽** briefly 5 times to move the on-screen's audio levels by one division on the scale. To move the audio levels faster, keep **Δ** or **▽** pressed.
- Adjust the recording level while watching the recorder's audio level meters. Set the level so that maximum volume causes the meters to vary between 0dB to 4dB.

RETURN TO NORMAL SCREEN

Press **MENU**.

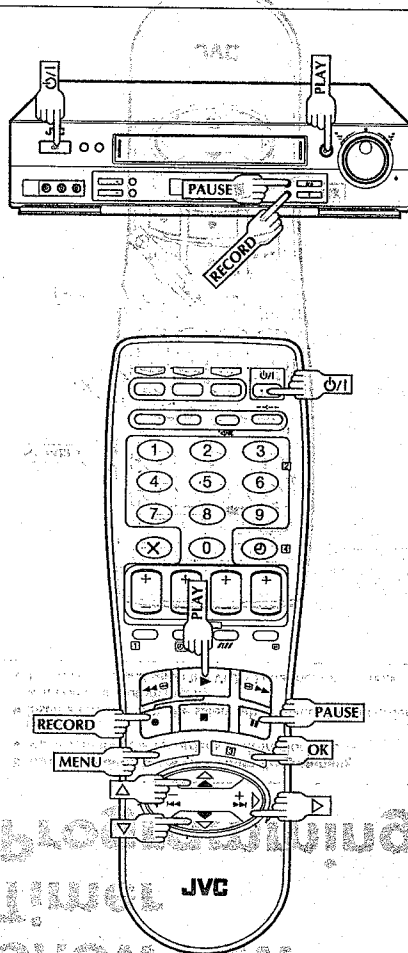
NOTE:

Noise will increase if the recording level is too low, while distortion will increase if the level is too high.

While watching another
recording programme

B.E.S.T. Picture System

Turn on the TV and select the VIDEO channel (or AV mode).



The B.E.S.T. (Biconditional Equalised Signal Tracking) system checks the condition of the tape in use during recording and playback, and compensates to provide the highest possible recording and playback pictures. The default setting for both recording and playback is "ON".

Preparation

1 TURN ON THE RECORDER

Press **ON** to turn the recorder on.

2 ACCESS MAIN MENU SCREEN

Press **MENU**.

3 ACCESS MODE SET SCREEN

Press **Δ** to move the highlight bar (pointer) to "MODE SET", then press **OK** or **▶**.

• "REC LEVEL CTL" appears only with the HR-DD858E and HR-DD858EH.

4 SELECT B.E.S.T. MODE

Press **Δ** to move the highlight bar (pointer) to "B.E.S.T.", then press **OK** or **▶** to set to "ON" or "OFF".

• "POWER SAVE" appears only with the HR-J758E and HR-DD858E.
• "TIME SCAN AUDIO" appears only with the HR-DD858E and HR-DD858EH.

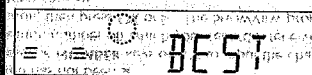
5 RETURN TO NORMAL SCREEN

Press **MENU**.

Recording

1 START RECORDING

Press and hold **RECORD** and press **PLAY** on the remote, or press **RECORD** on the recorder. **BEST** appears on the display panel.



B.E.S.T. COMPLETE



• The recorder spends approximately 7 seconds assessing the condition of the tape, then begins recording.

NOTES:

- The B.E.S.T. system works for both SP and LP modes only after a tape has been inserted and the Record mode is first initiated. It does not work during recording.
- The B.E.S.T. system does not work while Auto Satellite Prog recording is in progress (see pg. 32).
- In the case of timer recording, the B.E.S.T. system works before recording is initiated.
- Once the cassette is ejected, the B.E.S.T. data is cancelled. The next time the cassette is used for recording, B.E.S.T. is re-performed.
- Pressing the recorder's **RECORD** button while "BEST" is displayed does not start Instant Timer Recording (see pg. 21).

ATTENTION

Since the B.E.S.T. system works before recording actually starts, there is a delay of approximately 7 seconds after **RECORD** and **PLAY** on the remote are pressed, or **RECORD** on the recorder is pressed. To make sure you record the desired scene or programme in its entirety, first perform the following steps:

- 1) Press and hold **PAUSE** and press **RECORD** to engage the **RECORD PAUSE** mode.
 - The recorder then automatically checks the condition of the tape and, after approximately 7 seconds, re-enters **RECORD PAUSE**.
- 2) Press **PLAY** to start recording.
 - If you want to bypass the B.E.S.T. system and begin recording immediately, set "B.E.S.T." to "OFF" in step 4 on page 24.

Playback

The recorder assesses the quality of the tape once you initiate playback.

1 START PLAYBACK

Press **PLAY**.



- The recorder adjusts the playback picture quality based on the quality of the tape in use.
- B.E.S.T. is active during Auto Tracking. "BEST" appears blinking on the recorder's display panel.

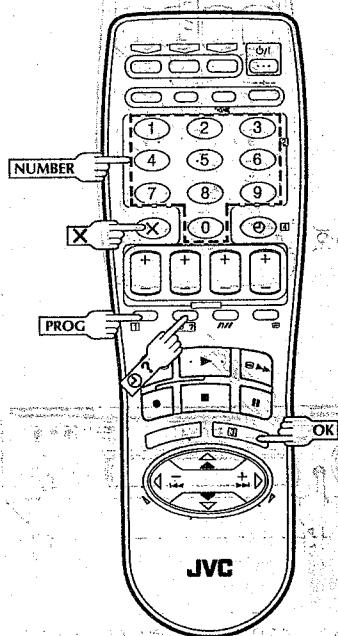
NOTES:

- When watching a tape recorded with "B.E.S.T." set to "ON", it is recommended that you leave B.E.S.T. on during playback as well.
- When watching a rental tape or one recorded on another video recorder, or when using this recorder as the player for editing, set B.E.S.T. to your preference by performing steps 1 through 5 on page 24.
- "BEST" only appears at the beginning of automatic tracking. Even though it doesn't appear after that, the B.E.S.T. function is operative.

SHOWVIEW Timer Programming

Before performing ShowView Timer Programming:

- Make sure that the recorder's built-in clock is set properly.
- Insert a cassette with the safety tab in place. The recorder will come on automatically.
- Turn on the TV and select the VIDEO channel (or AV mode).



With ShowView, timer programming is greatly simplified because each TV programme has a corresponding code number which your recorder is able to recognize.

1 ACCESS SHOWVIEW SCREEN

Press **PROG**, and the screen shows the programme start time. Press **0** and changes the display to the programme stop time, then the date and channel position.



The front display panel looks like this:

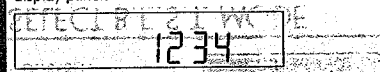
Press the channel position number you wish to record is displayed. See "ShowView Setup" on page 53 for more details.

2 ENTER SHOWVIEW NUMBER

Press the **NUMBER** keys to enter the ShowView number of a programme you wish to record.

- If you make a mistake, press **X** and input the correct number.

The ShowView number you enter appears on the front display panel:



The display panel can show only a 4-digit number.

3 ACCESS SHOWVIEW PROGRAM SCREEN

Press **OK**, and the ShowView Program screen appears (if you're just starting out, "P1" appears).

The display panel shows the programme start time. Pressing **0** changes the display to the programme stop time, then the date and channel position.



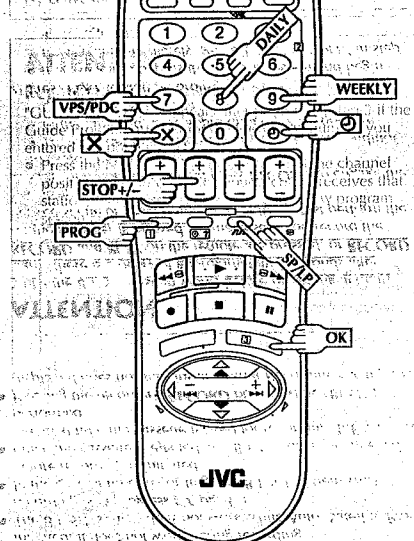
IMPORTANT

• Make sure the channel position number you wish to record is displayed; if not, see "ShowView Setup" on page 53 and set the Guide Program number for that ShowView number correctly.

- If the number you entered is invalid, "ERROR" appears on the screen and "Err" appears on the display panel.
- Press **X** and input a valid ShowView number.
- If the "GUIDE PROG SET" screen appears, see "ATTENTION" Regarding Guide Program Number "Set" on page 27.

Satellite Tuner Users

1. Set "AV2 SELECT" to "AV2" (pg. 37).
2. Perform steps 1-7.
3. Set the satellite tuner to the appropriate channel before the selected programme begins.
4. Leave the satellite tuner's power on.

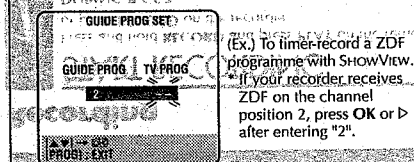


ATTENTION

Regarding Guide Program Number Set

"GUIDE PROG SET" appears after performing step 3 if the Guide Program number for the ShowView number you entered has not been set.

- Press the **NUMBER** keys or **Δ**/**∇** to input the channel position number on which your recorder receives that station, then press **OK** or **▷**. The ShowView program screen appears.



SET TAPE SPEED

Press **SP/LP** (**11/1**) to set the tape speed.

SET VPS/PDC MODE

Press **VPS/PDC** to select "ON" or "OFF".

If "VPS/PDC ON" is displayed on the screen or "VPS/PDC" is lit on the display panel, VPS/PDC is set to ON. If "VPS/PDC OFF" is displayed on the screen or "VPS/PDC" is not lit on the display panel, VPS/PDC is set to OFF.

See "VPS/PDC Recording" on page 29.

RETURN TO NORMAL SCREEN

Press **PROG** or **OK**; "PROGRAM COMPLETED" appears on the screen for about 5 seconds, then normal screen appears.

- Repeat steps 1 - 6 for each additional programme.

ENGAGE RECORDER'S TIMER MODE

Press **⊙** (TIMER). The recorder turns off automatically and **⊙** appears on the display panel.

- To disengage the timer, press **⊙** (TIMER) again.

NOTES:

- To Change The Stop Time... press **STOP** **+/-** after pressing **OK** in step 3. You can compensate for anticipated programme schedule delays this way.
- To Timer-Record Weekly Or Daily Serials... after pressing **OK** in step 3, press **WEEKLY** (NUMBER key "9") for weekly serials or **DAILY** (NUMBER key "8") for daily serials (Monday - Friday). Either "WEEKLY" or "DAILY" appears on the screen. Pressing the button again makes the corresponding indication disappear.
- You can programme this recorder to timer-record as many as 8 programmes. If you try to programme the recorder to record a ninth, "PROGRAM FULL" appears on screen and "FULL" appears on the front display panel. To record the extra programme, you must first cancel any unnecessary programmes (pg. 30).
- It is not possible to timer-record a TV programme with a ShowView number which starts with "0".

Timer Warning

If you have programmed your recorder to timer-record a programme or a series of programmes, a warning appears on screen to tell you that the recording is to start in 5 minutes.

NOTES:

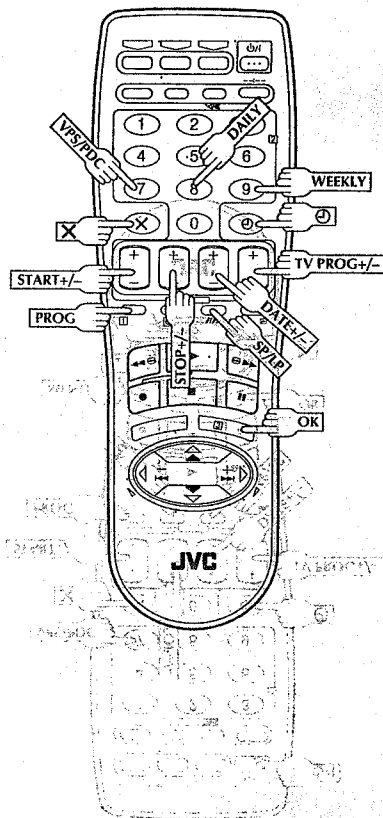
- The warning only appears if you're not in the Timer mode at that time.
- If this recorder is being used as the player for tape dubbing, the warning screen is recorded on the tape in the other video recorder.

The warning blinks for the entire 5 minutes leading up to the start of timer recording. To clear the display, press **X**.

Express Timer Programming

Before performing Express Timer Programming:

- Make sure that the recorder's built-in clock is set properly.
- Insert a cassette with the safety tab in place. The recorder will come on automatically.
- Turn on the TV and select the VIDEO channel (or AV mode).



TIMER RECORDING (cont.)

If you don't know the ShowView number for the programme you wish to record, use the following procedure to set your recorder to timer-record the programme.

ACCESS SHOWVIEW SCREEN

Press **PROG**.

ACCESS PROGRAMME SCREEN

Press **START +/-** (If you're just starting out, "PI" appears.)

Press **START +/-** to move in 30-minute increments, or press and release repeatedly to move 1 minute at a time.

The front display panel looks like this:

Press **START +/-** to enter the time you want recording to start.

ENTER PROGRAMME START TIME

Press **START +/-** to enter the time you want recording to start.

Press and hold **START +/-** to move in 30-minute increments, or press and release repeatedly to move 1 minute at a time.

The front display panel looks like this:

ENTER PROGRAMME STOP TIME

Press **STOP +/-** to enter the time you want recording to stop.

Press and hold **STOP +/-** to move in 30-minute increments, or press and release repeatedly to move 1 minute at a time.

ENTER PROGRAMME DATE

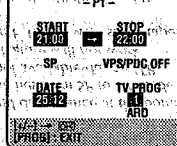
Press **DATE +/-** (The current date appears on screen. The date you enter appears in its place.)

Press **DATE +/-** to move in 30-minute increments, or press and release repeatedly to move 1 minute at a time.

Press **DATE +/-** to move in 30-minute increments, or press and release repeatedly to move 1 minute at a time.

ENTER CHANNEL POSITION

Press **TV PROG +/-**.



SET TAPE SPEED

Press **SP/LP** to set the tape speed.

SET VPS/PDC MODE

Press **VPS/PDC** to select "ON" or "OFF".

If "VPS/PDC ON" is displayed on the screen or "VPS/PDC" is lit on the display panel, VPS/PDC is set to ON. If "VPS/PDC OFF" is displayed on the screen or "VPS/PDC" is not lit on the display panel, VPS/PDC is set to OFF.

RETURN TO NORMAL SCREEN

After confirming all information is correct, press **PROG** or **OK**. "PROGRAM COMPLETED" appears on the screen for about 5 seconds, then normal screen appears.

Repeat steps 1 - 9 for each additional programme.

ENGAGE RECORDER'S TIMER MODE

Press **⊙** (TIMER). The recorder turns off automatically and **⊙** appears on the display panel.

To disengage the timer, press **⊙** (TIMER) again.

To Timer-Record Weekly Or Daily Serials... anytime during steps 2 through 9, press **WEEKLY** (NUMBER key "9") for weekly serials or **DAILY** (NUMBER key "8") for daily serials (Monday - Friday). Either "WEEKLY" or "DAILY" appears on the screen. Pressing the button again makes the corresponding indication disappear.

NOTE:

You can programme this recorder to timer-record as many as 8 programmes. If you try to programme the recorder to record a ninth, "PROGRAM FULL" appears on screen and "FULL" appears on the front display panel. To record the extra programme, you must first cancel any unnecessary programmes (pg. 30).

Satellite Tuner Users

To timer-record a satellite broadcast using Express Timer Programming:

- 1 Set "AV2 SELECT" to "AV2" (pg. 37).
- 2 Perform steps 1 - 10. Enter "L-2" for the channel position in step 6.
- 3 Set the satellite tuner to the appropriate channel before the selected programme begins.
- 4 Leave the satellite tuner's power on.

VPS/PDC Recording

Now available from some TV stations, PDC (Programme Delivery Control) and VPS (Video Programme System) are service designed to assure safe, accurate timer recording. With this system, special code signals are transmitted together with the audio/video signals. These code signals control your video recorder and have precedence over the advertised times you may have preset into the timer. This means that your recorder will start and stop recording when the preset TV programmes actually start and end - even if the broadcast time of a preset TV programme is changed.

NOTES:

- When you use Express Timer Programming, set the start time (VPS or PDC time) exactly as advertised in the TV listing. A different time than advertised will result in no recording.
- VPS/PDC recording is also possible when a satellite tuner or a cable system is connected to AV2 IN/DECODER on your recorder.
- VPS/PDC recording is also possible via the AV1 IN/OUT connector.

How to check if the station being received transmits a VPS/PDC signal:

- 1 Press **⊙** until the channel position appears on the display panel.
- 2 Hold down **START +/-** for about 5 seconds.
 - "VPS/PDC" appears blinking on the display panel.
 - If a VPS/PDC signal is detected from the station, "VPS/PDC" will stop blinking.
 - If no VPS/PDC signal is detected from the station, "VPS/PDC" will blink at a slower rate.
- 3 Press **⊙** or **START +/-** again to return to normal display.

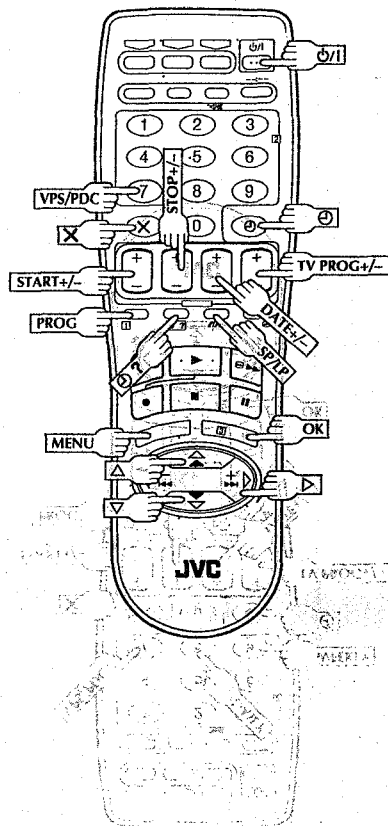
Timer Warning

If you have programmed your recorder to timer-record a programme or a series of programmes, a warning appears on screen to tell you that the recording is to start in 5 minutes.

NOTES:

- The warning only appears if you're not in the Timer mode at that time.
- If this recorder is being used as the player for tape dubbing, the warning screen is recorded on the tape in the other video recorder.

The warning blinks for the entire 5 minutes leading up to the start of timer recording. To clear the display, press **X**.



Check, Cancel And Replace Programmes

1 DISENGAGE TIMER MODE

Press $\odot$, then press $\odot$.

2 ACCESS PROGRAM CHECK SCREEN/DISPLAY

Press $\odot$?

PR	START	STOP	CH	DATE
1	8:00	10:00	3	24.12
2	10:00	10:45	3	25.12
3	11:30	13:00	1	26.12

3 ACCESS PROGRAM SCREEN/DISPLAY

Press $\odot$? again to check more information. Each time you press $\odot$?, the next programme's information appears.

START	STOP	CH	DATE
8:00	10:00	3	24.12
10:00	10:45	3	25.12
11:30	13:00	1	26.12

• The display panel shows the programme start time. Pressing OK changes the display to the programme stop time, then the date and the channel position.

To cancel or replace a programme...

4 CANCEL OR REPLACE A PROGRAMME

Press $\times$ to cancel a programme. To replace a programme, press the appropriate button: START+/-, STOP+/-, DATE+/-, TV PROG+/-, VPS/PDC, SP/LP (P/L).

5 RETURN TO NORMAL SCREEN/DISPLAY

Press $\odot$? as many times as necessary. If there are still some programmes remaining, go on to step 6.

6 RETURN TO TIMER MODE

Press $\odot$.

NOTE:

You can also check the programmes on the display panel even if the recorder's power is off (unless the recorder is in the Power Save mode (pg. 9) or the recorder is in the Timer mode; however, it is not possible to cancel or replace the programmes).

Auto SP→LP Timer

If, when timer-recording in SP mode, there is not enough tape to record the entire programme, the recorder automatically switches to LP mode to allow complete recording.

For Example: Recording a programme of 210 minutes in length onto a 180-minute tape.

SP mode	LP mode
Approximately 150 minutes	Approximately 60 minutes
Total 210 minutes	

Make sure you set "AUTO SP→LP TIMER" to "ON" at the Mode Set screen before the timer-recording starts.

1 ACCESS MAIN MENU SCREEN

Press MENU.

2 ACCESS MODE SET SCREEN

Press Δ / ∇ to move the highlight bar (pointer) to "MODE SET", then press OK or $\triangleright$.

3 SELECT MODE

Press Δ / ∇ to move the highlight bar (pointer) to "AUTO SP→LP TIMER", then press OK or $\triangleright$ to select "ON".

• "POWER SAVE" appears only with the HR-J758E and HR-DD858E.
• "TIME SCAN AUDIO" appears only with the HR-DD858E and HR-DD858EH.

4 RETURN TO NORMAL SCREEN

Press MENU.

NOTES:

- If you have programmed the recorder to timer-record 2 or more programmes, the second programme and those thereafter may not fit on the tape if you set "AUTO SP→LP TIMER" to "ON". In this case, make sure the mode is not engaged, then set the tape speed manually during timer programming.
- In order to ensure that the recording fits on the tape, this feature may leave a slight non-recorded section at the end of the tape.
- There may be some noise and sound disturbance at the point on the tape where the recorder switches from SP to LP mode.
- The Auto SP→LP Timer feature is not available during ITR (Instant Timer Recording), and the feature will not work properly with any tapes longer than E-180 or with some tapes of shorter lengths.
- If you perform timer recording with both VPS/PDC and the Auto SP→LP Timer activated, and the programme goes beyond its originally scheduled length, there may be times when the programme cannot be recorded in its entirety.

Auto Timer

When the Auto Timer is set to "ON" the timer is automatically engaged when the recorder power is turned off and automatically disengaged when the recorder is powered back on.

1 ACCESS MAIN MENU SCREEN

Press MENU.

2 ACCESS MODE SET SCREEN

Press Δ / ∇ to move the highlight bar (pointer) to "MODE SET", then press OK or $\triangleright$.

• "REC LEVEL CTL" appears only with the HR-DD858E and HR-DD858EH.

3 SELECT MODE

Press OK or $\triangleright$ to select either "ON" or "OFF".

• "POWER SAVE" appears only with the HR-J758E and HR-DD858E.
• "TIME SCAN AUDIO" appears only with the HR-DD858E and HR-DD858EH.

4 RETURN TO NORMAL SCREEN

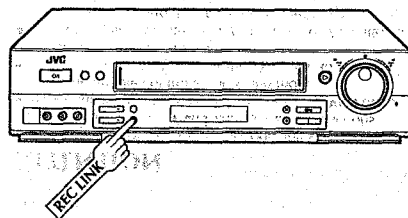
Press MENU.

NOTE:

For safety, when Auto timer is set to "OFF", all other recorder functions are disabled while the Timer mode is engaged. To disengage the timer, press $\odot$ (TIMER).

AB2/PDC Recording

Automatic Satellite Programme Recording



ATTENTION

- Be sure not to turn on the satellite tuner before the programme is executed; otherwise, the recorder will start recording when the satellite tuner's power is turned on.
- If you have connected another appliance other than a satellite tuner to the AV2 IN/DECODER connector, be sure not to engage the Auto Satellite Prog Rec mode; otherwise, the recorder will start recording when the connected appliance's power is turned on.
- Auto Satellite Prog recording and timer-recording cannot be done at the same time.

NOTES:

- Auto Satellite Prog recording is not possible with the AV1 IN/OUT connector.
- For timer programming of the satellite tuner, refer to the instruction manual of the satellite tuner.
- Auto Satellite Prog recording is not possible if your satellite tuner does not have a timer.
- The button's light blinks while Auto Satellite Prog recording is in progress.
- Pressing the recorder's O/I button while Auto Satellite Prog recording is in progress turns off the recorder's power and disengage the Auto Satellite Prog Rec mode.
- If there are more than one satellite programme you wish to record with Auto Satellite Prog Recording, it is not possible to set the different tape speed per each; the tape speed selected in step 2 will be applicable to all the programmes for Auto Satellite Prog recording.
- The B.E.S.T. system (pg. 24) does not work while Auto Satellite Prog recording is in progress.
- Just Clock (pg. 54) does not work when the Auto Satellite Prog Rec mode is engaged.
- Depending on the type of satellite tuner, the recorder may not record a slight portion of the beginning of the programme or may record slightly longer than the actual length of the programme.
- If you engage the Auto Satellite Prog Recording mode when the satellite tuner's power is on, the recorder will not start Auto Satellite Prog recording even though the button's light blinks. When the satellite tuner shuts off once and is turned back on again, the recorder starts recording.
- When the Auto Satellite Prog Rec mode is engaged or the recorder's power is turned off after Auto Satellite Prog recording is finished, the recorder will not enter the Timer mode even though "AUTO TIMER" is set to "ON".
- After Auto Satellite Programme recording, the number of recorded programmes will not be displayed on the front display panel for the Instant ReView function (pg. 15).
- You can also record a programme from your cable system in the same way if the system has a timer.

This facility allows you record automatically a satellite programme which is timer-programmed on your external satellite tuner. Connect a satellite tuner to the recorder's AV2 IN/DECODER connector and programme the timer on the satellite tuner; the recorder starts recording when the signals input from the satellite tuner to the AV2 IN/DECODER connector, and when there is no input signals the recorder stops recording and the power shuts off.

Before performing the following steps:

- Make sure the satellite tuner is connected to the recorder's AV2 IN/DECODER connector. (pg. 42)
- Programme the timer on the satellite tuner.
- Insert a cassette with the safety tab in place.

1 SELECT AV2 SELECT MODE

Set "AV2 SELECT" to "AV2" (pg. 37).

2 SET TAPE SPEED

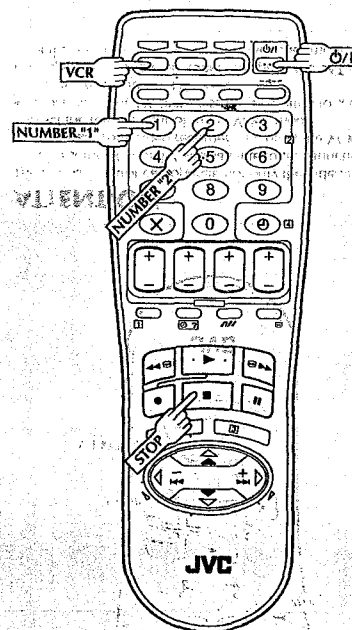
Press SP/LP (III) to set the tape speed.

3 ENGAGE AUTO SATELLITE PROG REC MODE

Press and hold REC LINK for about 2 seconds. The button lights up and the recorder turns off automatically.

- To disengage the Auto Satellite Prog Rec mode, press REC LINK. The button's light goes off.
- If the recorder's power is off, it is not possible to engage the Auto Satellite Prog Rec mode.

Remote Control Functions



Remote A/B Code Switching

The remote control is capable of controlling two JVC video recorders independently; one set to respond to the remote control's A code control signals and another set to respond to B code control signals. The remote control is preset to send A code signals because your video recorder is initially set to respond to A code signals. You can easily modify your video recorder to respond to B code signals.

REMOVE POWER SUPPLY

Unplug the mains power cord from the mains outlet.

2 SET REMOTE CONTROL CODE

While holding down VCR on the remote control, press the NUMBER key "2" and then press STOP.

3 RE-SUPPLY POWER

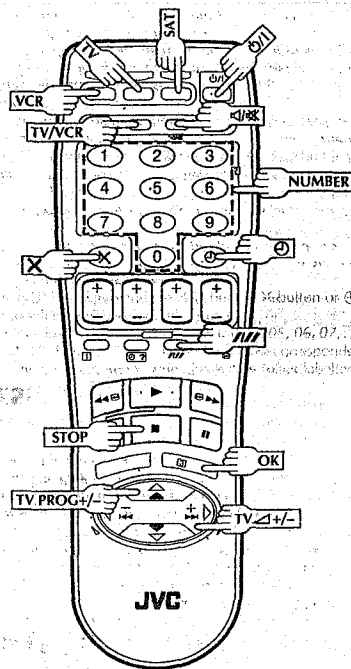
Plug the mains power cord back into the mains outlet.

4 TURN THE RECORDER ON

Press O/I on the remote control. The recorder will now only respond to B code signals.

NOTES:

- Some TV sets may malfunction in response to the B code. If this happens, switch back to the A code.
- To set the recorder back to respond to A code signals, repeat the same procedure as shown above except pressing NUMBER key "1" instead of "2" in step 2.



TV Multi-brand Remote Control

Your remote control can operate the basic functions of your TV set. In addition to JVC TVs, other manufacturer's TVs can also be controlled.

Before you start...

- Turn on the TV using its remote control.

SET TV BRAND CODE

- 1 Refer to the chart below. While holding down TV on the recorder's remote control, enter your TV's brand code using the NUMBER keys, then press STOP. Check if the TV's power goes off as it should. If it does, try other operations (step 2).

- Once you have set the remote control to operate the TV, you don't have to repeat this step until you replace your remote control's batteries.
- JVC or SAMSUNG has more than one code. If the TV does not function with one code, try entering another.

OPERATE TV

- 2 First, press TV to set the remote control to TV mode, then press the corresponding button: TV/VCR, TV PROG +/- (Volume), MUTE (Muting), NUMBER keys.

- For some brands of TV, you must press OK after having pressed the NUMBER keys.

IMPORTANT

Although the provided remote control unit is compatible with JVC televisions, as well as many other models, it may not work with your TV, or in some instances, may have limited function capability.

TV BRAND NAME	CODE
JVC	01, 02, 03, 04
BRANDT	05
NORDMENDE	05
SABA	05
TELEAVIA	05
TELEFUNKEN	05
THOMSON	05
FERGUSON	06
PHILIPS	07
SAMSUNG	07, 19, 23, 24, 25
BLAUPUNKT	08
GRUNDIG	08
SONY	09
PANASONIC	10
GRAETZ	11
ITT	11
LUXOR	11
SALORA	11
SELECO	11
MIVAR	12
HITACHI	13
TOSHIBA	14
MITSUBISHI	15
FINLUX	16
NOKIA	17
SHARP	18
FUNAI	20
GOLDSTAR	21
NEC	22

ATTENTION

The remote control can operate not only the video recorder but also some of your TV and satellite tuner's functions.

- To operate your video recorder, first press the VCR button to set the remote control to the Video mode.
- To operate your TV, first press the TV button to set the remote control to the TV mode.
- To operate your satellite tuner, first press the SAT button to set the remote control to the Satellite tuner mode.

Control Your TV Using Additional Buttons

Use the NUMBER keys, and the /// button, X button or 0 button to select the TV's channel.

- With televisions under Code 01, 02, 03, 04, 05, 06, 07, 09, 10, 13, 14, 22, 23 or 25, the /// button corresponds to the 1-digit/2-digit entry switching button (often labelled -/+) of your TV's remote control.
- With televisions under Code 01, 11 or 12, the X button corresponds to the 10+ button; and the 0 button corresponds to the 20+ button of your TV's remote control.

NOTE:

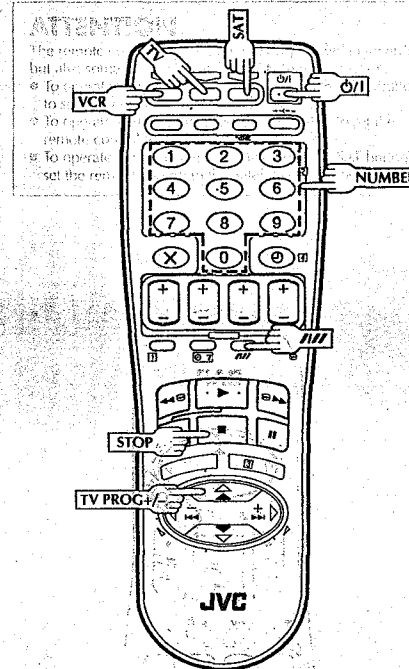
The way these buttons are used is determined by your TV. Use these buttons as instructed for your TV's remote control.

Satellite Tuner Multi-Brand Remote Control

Your remote control can operate the basic functions of your satellite tuner set. In addition to JVC satellite tuners, other manufacturer's satellite tuners can also be controlled.

Before you start...

- Turn on the satellite tuner using its remote control.



SET SATELLITE RECEIVER BRAND CODE

- 1 Refer to the chart below. While holding down SAT on the recorder's remote control, enter your satellite tuner's brand code using the NUMBER keys, then press STOP. Check if the satellite tuner's power goes off as it should. If it does, try other operations (step 2).

- Once you have set the remote control to operate the satellite tuner, you don't have to repeat this step until you replace your remote control's batteries.
- Some satellite tuner brands have more than one code. If the satellite tuner does not function with one code, try entering another.

OPERATE SATELLITE TUNER

- 2 First, press SAT to set the remote control to satellite tuner mode, then press the corresponding button: TV/VCR, TV PROG +/-, NUMBER keys.

- For VIDEOWAY or some brands of satellite tuner, you must press /// after having pressed the NUMBER keys.
- The NUMBER buttons may not function with some satellite tuners.

IMPORTANT

Although the provided remote control unit is compatible with JVC satellite tuners, as well as many other models, it may not work with your satellite tuner, or in some instances, may have limited function capability.

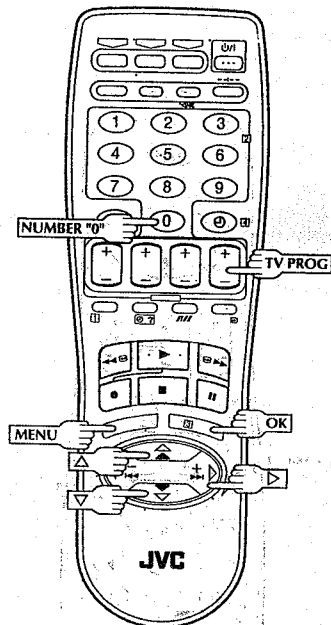
SATELLITE TUNER BRAND	CODE
JVC	13, 14
AMSTRAD	01, 02, 03, 04
GRUNDIG	05, 06
HIRSCHMANN	05
SIEMENS	05
WISI	05
KATHREIN	05, 11, 12
PACE	06, 08
PHILIPS	07
FINLUX	09
ITT	09
NOKIA	09
SALORA	09
RFT	10
SKYMASTER	10
MASPRO	11
BT	13
PANASONIC	15
JERROLD	16
VIDEOWAY	17

ATTENTION

The remote control can operate not only the video recorder but also some of your TV and satellite tuner's functions.

- To operate your video recorder, first press the VCR button to set the remote control to the Video mode.
- To operate your TV, first press the TV button to set the remote control to the TV mode.
- To operate your satellite tuner, first press the SAT button to set the remote control to the Satellite tuner mode.

Edit To Or From Another Video Recorder



You can use your video recorder as the source player or the recording deck.

1

MAKE CONNECTIONS

Connect the player's 21-pin SCART (AV) connector to the recorder's 21-pin SCART (AV) connector as illustrated on page 37.

When Using Your Video Recorder As The Source Player...

... connect its AV1 IN/OUT connector to the recording deck.

When Using Your Video Recorder As The Recording Deck...

... connect its AV2 IN/DECODER or AV1 IN/OUT connector to the source player.

2

SET RECORDING DECK'S INPUT MODE

Set to AUX. With this video recorder, press **NUMBER** key "0" and/or **TV PROG** to select depending on the connector being used: "L-1" for the AV1 IN/OUT connector, or "L-2" for the AV2 IN/DECODER connector.

- When using the AV2 IN/DECODER connector, make sure "AV2 SELECT" is set to "AV2" (pg. 37).

3

START SOURCE PLAYER

Engage its Play mode.

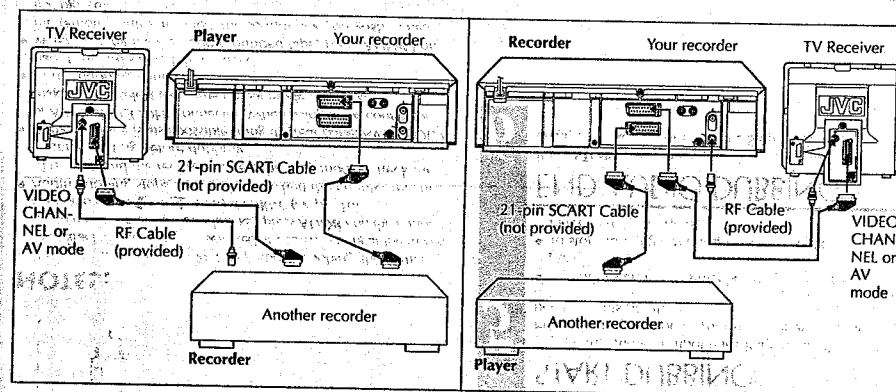
4

START RECORDING DECK

Engage its Record mode.

NOTES:

- All necessary cables can be obtained from your dealer.
- When you use this recorder as the player for editing, be sure to set "O.S.D." to "OFF" before starting (pg. 8).
- If you use this recorder as the player for editing, be sure to turn off 3R Picture before starting. (pg. 14)



AV2 SELECT Setting

- Press **MENU** to access the Main Menu screen.
- Press **Δ** to move the highlight bar (pointer) to "MODE SET", then press **OK** or **▷**.
- Press **Δ** to move the highlight bar (pointer) to "AV2 SELECT".
- Press **OK** or **▷** to select "AV2" or "DECODER".
 - a-AV2 : To use this recorder as the recording deck with the player connected to the AV2 IN/DECODER connector.
OR
To record a satellite programme through a satellite tuner connected to the AV2 IN/DECODER connector.
 - b-DECODER : To use a decoder connected to the AV2 IN/DECODER connector.
- Press **MENU** to return to normal screen.

MODE SET	
AUTO TIMER	OFF
O.S.D.	ON
S.E.T.	ON
AUTO SP-1P TIMER	ON
POWER SAVE	OFF
AV2 SELECT	AV2
COLOUR SYSTEM PAL/NTSC	ON
TIME SCAN AUDIO	ON
AV1 → AV2	ON
ENTER EXIT	

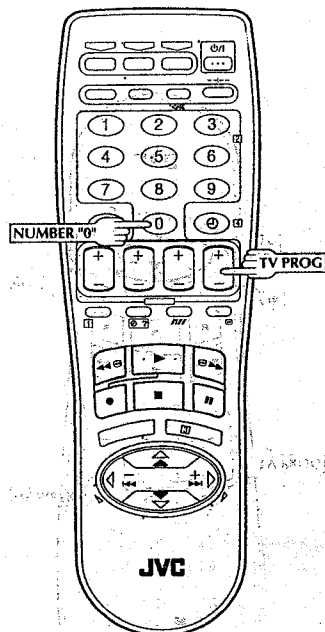
- If you have a decoder, be sure to set "AV2 SELECT" back to "DECODER" after editing.
- If you're not using a decoder, leave "AV2 SELECT" set to "AV2".
- The default setting is "AV2"; if the recorder's memory backup has expired due to a power cut or because the AC was removed from the recorder, "AV2" will be automatically selected when the power is restored to the recorder. If you are using a decoder, be sure to set "AV2 SELECT" back to "DECODER".

NOTES:

On the Mode Set screen...

- "POWER SAVE" appears only with the HR-J758E and HR-DD858E.
- "TIME SCAN AUDIO" appears only with the HR-DD858E and HR-DD858EH.

Edit From A Camcorder



You can use a camcorder as the source player and your video recorder as the recorder.

1 MAKE CONNECTIONS

Connect the camcorder's AUDIO/VIDEO OUT connectors to the recorder's front panel AUDIO/VIDEO input connectors.

- When using a monaural camcorder, connect its AUDIO OUT connector to the AUDIO L input connector on your recorder.
- When a Master Edit Control-equipped JVC camcorder is used, the camcorder is capable of controlling the recorder. Refer to the camcorder's instruction manual for operating procedure.

2 SET RECORDER'S INPUT MODE

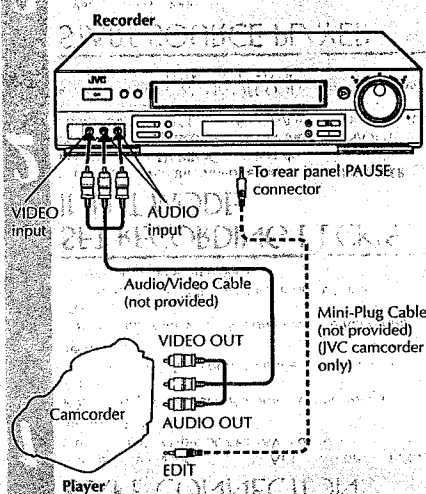
Press **NUMBER** key "0" and/or **TV PROG** so that "F-1" appears in place of a channel position number.

3 START CAMCORDER

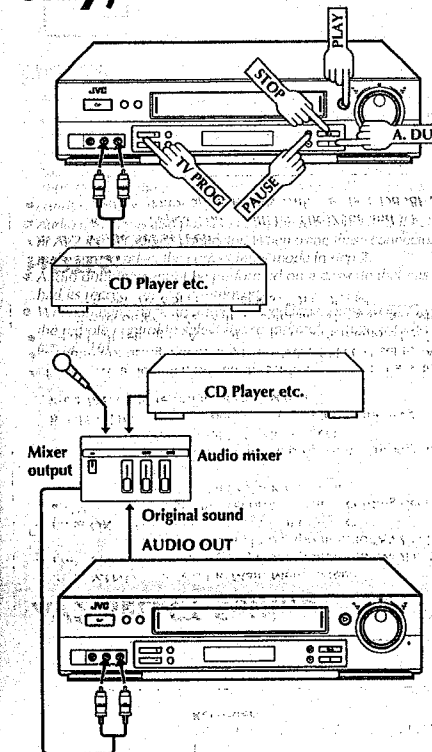
Engage its Play mode.

4 START RECORDER

Engage its Record mode.



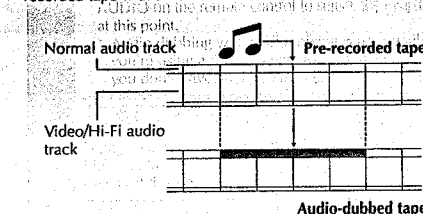
Audio Dubbing (HR-DD858E/EH only)



NOTES:

- When monitoring the sound during Audio Dubbing, the normal soundtrack is automatically selected. If you wish to hear the mixed sound (Hi-Fi + Normal soundtracks), press **AUDIO** on the remote control to select **[L+R]+NORM** (pg. 16).
- Audio dubbing stops automatically when the counter reaches "0:00:00", and the recorder enters the Play mode. Check the counter reading before dubbing.
- Audio dubbing is also possible using the rear panel AV1 IN/OUT or AV2 IN/OUT connector. When using these connectors, make sure to select the correct input mode in step 2.
- Audio dubbing cannot be performed on a cassette that has had its record safety tab removed.
- When playing back an audio-dubbed tape, press **AUDIO** on the remote control to select the soundtrack you wish to hear (pg. 16).

Audio dubbing replaces the normal audio sound of a previously recorded tape with a new soundtrack.



1 MAKE CONNECTIONS

Connect an audio component to the AUDIO L + R connectors on the recorder's front panel.

- When connecting monaural equipment, use only the recorder's AUDIO L connector.

2 SET INPUT MODE

Press **NUMBER** key "0" and/or **TV PROG** so that "F-1" appears in place of a channel number.

3 LOCATE START POINT

Press **PLAY** to start playback of the tape in your recorder, and press **PAUSE** when you find the point where you want to start dubbing.

4 ENGAGE AUDIO DUBBING

Press **A. DUB**.

- Your recorder enters the Audio Dubbing Pause mode. ("0" blinks, "▶" and "A" light up on the front display panel.)
- To perform audio dubbing with audio mixing, press **AUDIO** on the remote control to select **[L+R]+NORM** at this point.
- Audio dubbing with audio mixing is not possible if you're using a monaural audio component, or if you don't have an audio mixer.

5 START DUBBING

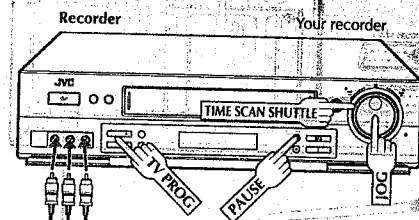
Engage the audio component's Play mode, then press **PLAY** to start the tape in your recorder. Audio dubbing begins at this point.

- "0" blinks, and "A" is displayed on the front display panel.
- To stop dubbing temporarily, press **PAUSE**. Press **PLAY** to resume dubbing.

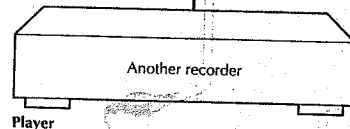
6 END AUDIO DUBBING

Press **STOP** to stop the tape in your recorder, and engage the audio component's Stop mode.

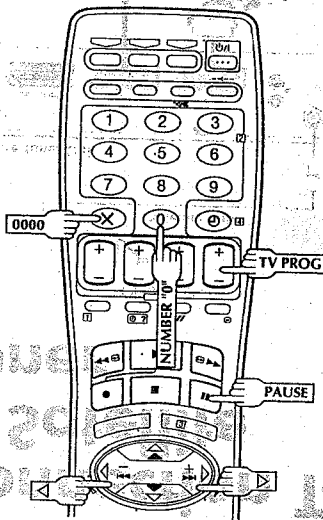
Insert Editing (HR-DD858E/EH only)



Audio/Video signal

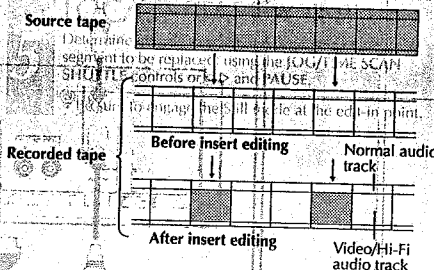


Player



EDITING (cont.)

Insert editing replaces part of the recorded scene with new material. Both the picture and Hi-Fi audio soundtrack are replaced with new ones, while the normal audio soundtrack remains unchanged. If you wish to change the normal audio track as well, use the audio dubbing function simultaneously. Use your video recorder as the recorder.



MAKE CONNECTIONS

Connect the player's VIDEO OUT and AUDIO OUT connectors to your recorder's VIDEO and AUDIO connectors on the front panel.

SET INPUT MODE

Press NUMBER key "0" and/or TV PROG so that "F-1" appears in place of a channel number.

LOCATE END POINT

Load the recording cassette into your recorder, and play it back to determine the edit-out point (the end of the segment to be replaced) using the JOG/TIME SCAN SHUTTLE controls or and PAUSE.

RESET THE COUNTER

Press 0000 to change the counter display to "0:00:00".

LOCATE START POINT

Determine the edit-in point (the beginning of the segment to be replaced) using the JOG/TIME SCAN SHUTTLE controls or and PAUSE.

- Be sure to engage the Still mode at the edit-in point.

ENGAGE INSERT EDITING

Press INSERT.

- Your recorder enters the Insert-Pause mode. ("O", "I" and "E" light up on the front display panel.)
- The TV screen changes from the still picture to the input source you are going to record.

START EDITING

Load the source cassette and play back the segment that is to be inserted. When you reach the start of the section of the source tape that you wish to insert, press PLAY to start the tape in your recorder; Insert Editing begins at this point.

- "O" and "I" are displayed on the front display panel.

END INSERT EDITING

At counter "0:00:00", Insert Editing will stop automatically while the tape continues running in the Play mode. If you wish to stop Insert Editing before the specified edit-out point, press 0000.

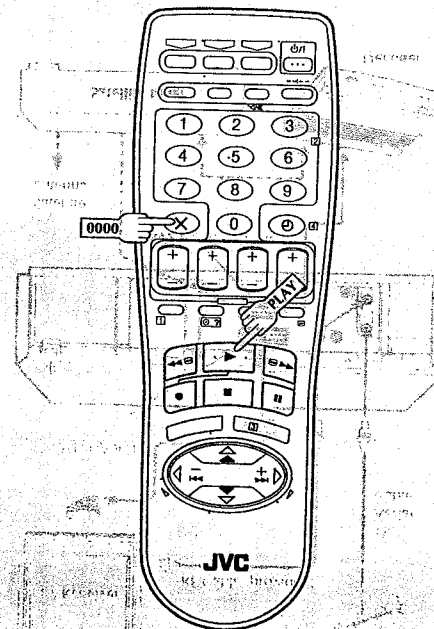
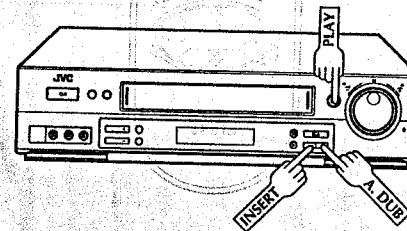
FOR AV INSERT EDITING

If you want to replace the picture, Hi-Fi audio soundtrack and normal audio soundtrack all at the same time...

... In step 6 above, after you press INSERT, press A. DUB also. ("O" and "I" blink and "E" lights up on the front display panel.)

NOTES:

- Suitable leads can be obtained from your dealer.
- Insert editing is not possible with cassettes whose safety tab has been removed.
- When insert editing is performed on a tape that has been recorded on another video recorder, the inserted portion may appear distorted.
- In insert editing, the recording speed (SP/LP) is determined by the previous recording to be replaced. If the previous recording's speed changes within a single edit, the inserted picture will be distorted at the switching point.
- A small portion of the recording which precedes an insert edit may become erased.
- Insert Editing is also possible using the rear panel AV1 IN/OUT or AV2 IN/DECODER connector. When using these connectors, make sure to select the correct input mode in step 2.



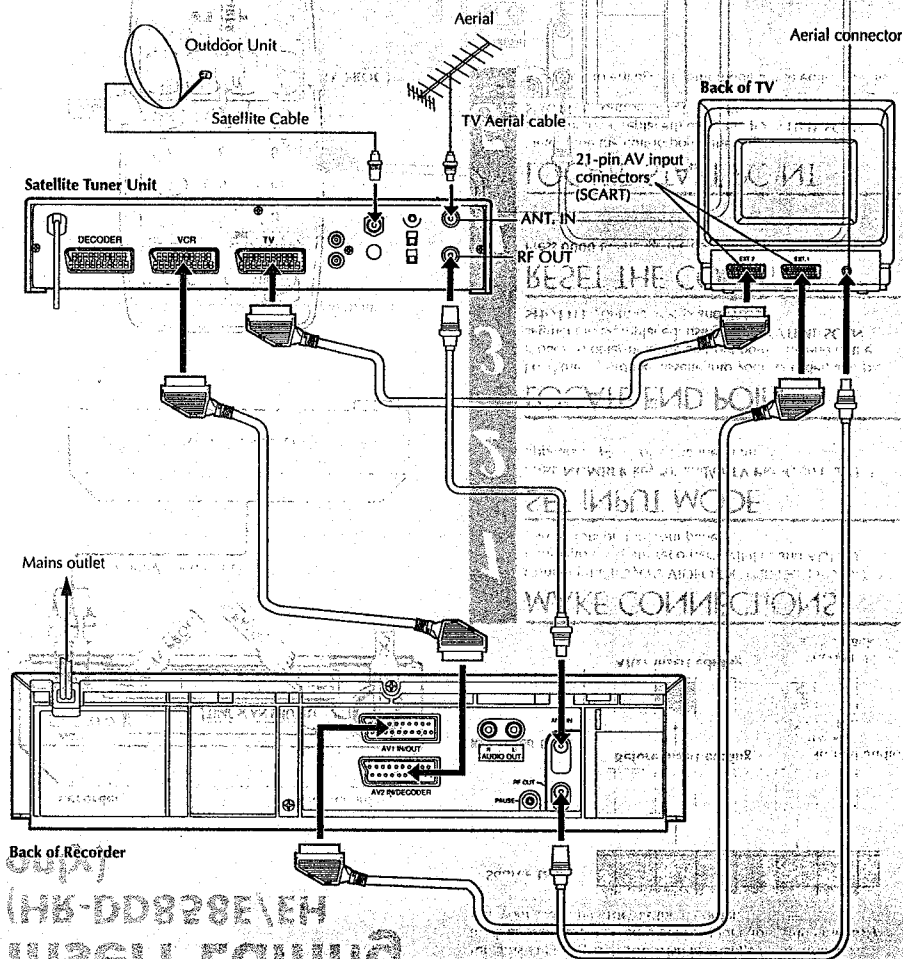
Decoder
using a
connecting

CONNECT DECODER

EFFECT IMITATION

Connection To A Satellite Tuner

The AV2 IN/DECODER connector on the rear panel of your recorder allows simple connection to a satellite tuner.



NOTE:

For details, check your satellite tuner's instruction manual.

Connecting/ Using A Decoder

The AV2 IN/DECODER connector can be used as an input terminal for an external decoder (descrambler). Simply connect a decoder and you can enjoy the variety of programming that is available through scrambled channels.

1 SELECT INPUT MODE

Set "AV2 SELECT" to "DECODER". (pg. 37)

2 CONNECT DECODER

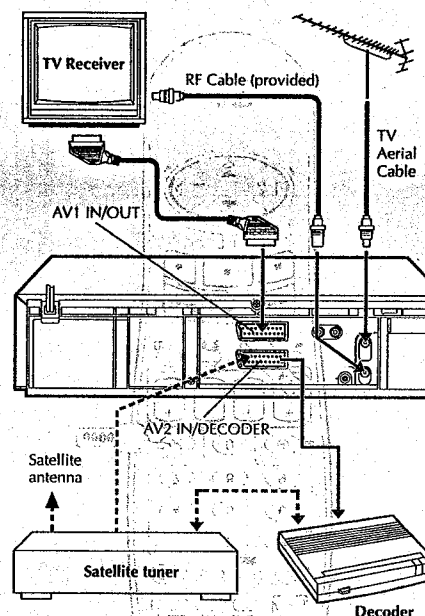
Connect your recorder's AV2 IN/DECODER connector to the decoder's Euroconnector using a 21-pin SCART cable.

3 SET TUNER

Perform the procedure as described in "When Receiving A Scrambled Broadcast" on page 49.

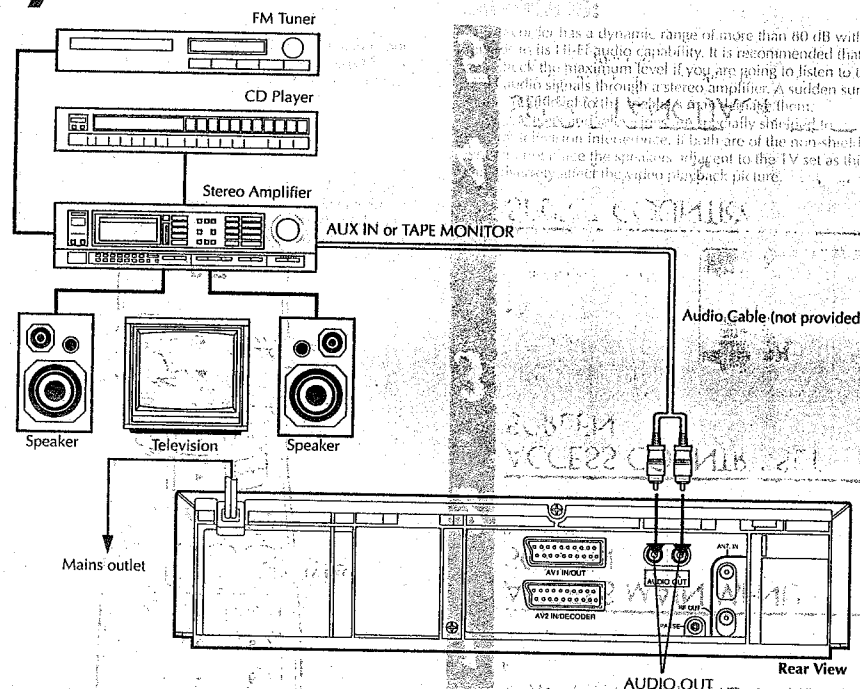
NOTE:

When Connecting A Satellite Tuner:
 ...if you don't have a decoder connect the satellite tuner directly to the video recorder's AV2 IN/DECODER connector.
 ...if you have a decoder, first connect the decoder to the decoder input of the satellite tuner, then connect the satellite tuner's output to the recorder's AV2 IN/DECODER connector. Refer to the instruction book for the satellite tuner and decoder.
 set "AV2 SELECT" to "AV2". (pg. 37)
 to view a programme via the satellite tuner, select L-2 mode by pressing NUMBER keys and/or TV PROG so that "L-2" appears on the display panel.



Connecting/ Using A Stereo System

These instructions enable you to connect your video recorder to your Hi-Fi stereo system (if you have one) and listen to the soundtrack through the stereo.



1 MAKE CONNECTIONS

Connect the AUDIO OUT L and R connectors on your video recorder to the AUX IN or TAPE MONITOR terminals on your stereo system's receiver or amplifier.

NOTES:

- When connecting your recorder's audio output connectors to a stereo amplifier, make sure you connect L and R correctly.
- If stereo or bilingual TV broadcasts are receivable in your area, this recorder can record them independently of the TV set and play them back through the connected stereo system.
- When listening to sound through the connected stereo system, turn the TV's volume down completely.

CAUTIONS:

- This recorder has a dynamic range of more than 80 dB with regards to its Hi-Fi audio capability. It is recommended that you check the maximum level if you are going to listen to the Hi-Fi audio signals through a stereo amplifier. A sudden surge in the input level to the speakers may damage them.
- Some speakers and televisions are specially shielded to prevent television interference. If both are of the non-shielded type, do not place the speakers adjacent to the TV set as this can adversely affect the video playback picture.

SUBSIDIARY SETTINGS

Video Channel Set

Video Channel (RF Output Channel) is the channel on which your TV receives picture and sound signals from the video recorder through the RF cable.

IMPORTANT

Perform the following steps only if:

- Video Channel Set has not been done correctly by the Auto Set Up function (pg. 4).
- interference appears in the TV picture after you have moved to a different area or a new station has started broadcasting in your area.
- you change the connection between your recorder and TV from RF connection to AV connection, or vice versa.

If you have connected the video recorder to your TV via both the RF cable and a 21-pin SCART cable (AV connection), since you do not need the video channel you have to set the video channel to off.

If you have connected the video recorder to your TV via the RF cable only (RF connection), you have to set the correct video channel.

Before performing the following steps, make sure the recorder's power is off and there is no cassette inserted in the recorder.

ACCESS VIDEO CHANNEL SET MODE

- Hold down STOP (■/▲) on the recorder until the display panel shows the following.

OUT 36

SET VIDEO CHANNEL

With AV Connection:

Press TV PROG+ until the display panel shows "OUT--".

OUT --

- Now the video channel is set to off.

With RF Connection:

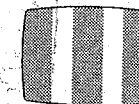
Press TV PROG+ or - to set the video recorder to a vacant channel between 22 and 69 which is not occupied by any local station in your area.

(Ex.) If channel 50 is available in your area

OUT 50

Then set your TV to UHF channel 50.

- If the two vertical white bars appear clearly on the screen as shown to the right, go to step 3.
- If the two vertical white bars do not appear clearly, re-set the video recorder to another vacant channel and try again.



NOTES:

- If you set the video recorder to a channel which is occupied by a local station or has neighbouring channels that are occupied by local stations, the picture reception quality will be affected and some interference noise will appear on the TV screen. Be sure to select a vacant channel which has no broadcast on neighbouring channels.
- If you cannot obtain the two vertical white bars clearly with any channel between 22 and 69, consult your JVC dealer.

EXIT VIDEO CHANNEL SET MODE

Press OK on the remote control.

With AV Connection:

To view picture signals from the video recorder, set your TV to its AV mode.

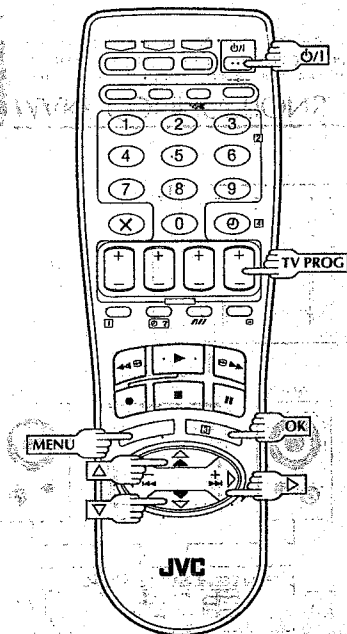
With RF Connection:

The channel on which the screen in step 2 appears clearly is your video channel.

To view picture signals from the video recorder, set your TV to the Video Channel.

Tuner Set

Turn on the TV and select the VIDEO channel (or AV mode).



IMPORTANT

Perform the following steps only if — Auto Channel Set has not been set correctly by Auto Set Up function (pg. 4). — you have moved to a different area or if a new station starts broadcasting in your area.

Your recorder needs to memorize all necessary stations in channel positions in order to record TV programmes. Auto Channel Set automatically assigns all receivable stations in your area to call them up by using the TV PROG buttons without going through any vacant channel.

Auto Channel Set

TURN ON THE RECORDER

Press ϕ/I .

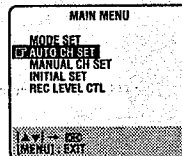
ACCESS MAIN MENU SCREEN

Press MENU.

ACCESS COUNTRY SET SCREEN

Press Δ/V to move the highlight bar (pointer) to "AUTO CH SET", then press OK or $\triangleright$.

- "REC LEVEL CTL" appears only with the HR-DD858E and HR-DD858EH.

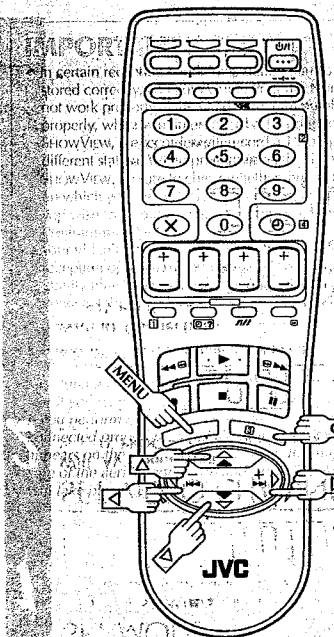


SELECT COUNTRY

Press Δ/V to move the highlight bar (pointer) to your country's name, then press OK or $\triangleright$.

SELECT LANGUAGE

Press Δ/V to move the highlight bar (pointer) to the language of your choice.



IMPORTANT

- In certain reception conditions, station names may not be stored correctly, and auto Guide Program Number Set may not work properly. If the Guide Program numbers are not set properly, when you timer-record a TV programme using ShowView, the recorder will record a TV programme of a different station. When programming the timer using ShowView, be sure to check whether the channel position on which your recorder receives the broadcasting station you wish to record is selected (pg. 26, "ShowView Timer Programming").
- Your video recorder memorizes all detected stations even if reception of some of them is poor. In these cases picture quality may be poor. To delete those stations with an unacceptable picture $\triangleright$ "Delete A Channel" on page 49.

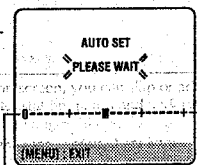
NOTES:

- Fine tuning is performed automatically during Auto Channel Set. If you want to perform it manually, refer to page 52.
- If you perform Auto Channel Set when the aerial cable is not connected properly, "SCAN COMPLETED NO SIGNAL" appears on the screen in step 7. When this happens, make sure of the aerial connection and press OK. Auto Channel Set will take place again.

PERFORM AUTO CHANNEL SET

Press OK or $\triangleright$.

- The Auto Set screen appears, and remains on screen while the recorder searches for receivable stations. As Auto Channel Set progresses, the "■" mark on the screen moves from left to right. Wait until the screen as shown in step 7 appears.



VIEW CONFIRMATION SCREEN

After "SCAN COMPLETED" is displayed on the screen for about 5 seconds, the Confirmation screen looking like the one to the right appears. The stations your recorder located appear on a Confirmation screen — channel positions (PR), channels (CH) and station names (ID — pg. 51). The blueback screen and the programme currently being broadcast by the blinking station appear alternately for 8 seconds each. To view the next page, use the $\Delta/V, \triangle/\triangleright$ button on the remote control.

PR	CH	ID	PR	CH	ID
02	C03	SKY1	03	C05	RAI1
03	C10	ZOF	10	C24	SAT1
04	C05	RAI1	11	C23	DSF
05	C31	BBG1	12	---	---
06	C32	BBG2	13	---	---
07	C33	3SAT	14	---	---

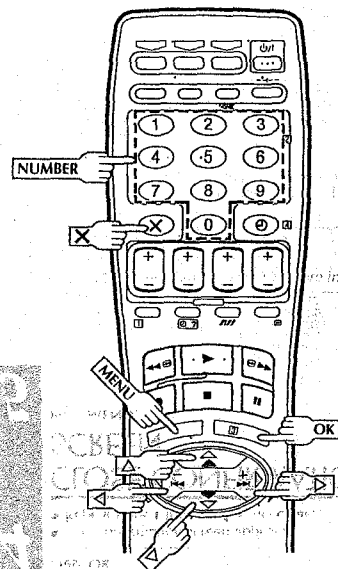
C: Cable

- The stations located in the selected country appear at the top of the list.
- The Guide Program numbers will also be set automatically during Auto Channel Set.

RETURN TO NORMAL SCREEN

Press MENU.

- Using the Confirmation screen, you can skip or add channel positions, enter station names and perform other operations. Refer to pages 48 – 52 for the procedures.
- Depending on reception conditions, the stations may not be stored in order, and the station names may not be stored correctly.
- For information on scrambled broadcasts, refer to page 49.



Storing Channels Manually

Store channels that were not stored during Auto Set Up (pg. 4) or Auto Channel Set (pg. 46).

1 ACCESS MAIN MENU

Press MENU.

2 ACCESS CONFIRMATION SCREEN

Press Δ until the highlight bar (pointer) to "MANUAL CH SET", then press OK or $\triangleright$. The Confirmation screen appears.

3 SELECT POSITION

Press Δ until an open position in which you want to store a channel begins blinking, then press OK. The Manual Channel Set screen appears.

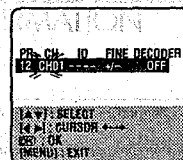
(Ex.) To store in position 12.

PR	CH	ID	PR	CH	ID
01	25	ARD	08	C26	E-SP
02	C09	SKY1	09	55	WEST
03	10	ZDF	10	C24	SAT1
04	C05	RAI	11	C23	DSF
05	C31	BBG1	12	---	---
06	C32	BBG2	13	---	---
07	C33	SSAT	14	---	---

The blueback screen and the programme currently being broadcast by the selected channel appear alternately for 8 seconds each.

4 SELECT BAND

Press Δ to change the band between CH (regular) and CC (cable), then press $\triangleright$.



To change positions, see "Change Station Channel Position" (pg. 49). If you wish to set station not registered in your recorder, page 50.

The blueback screen and the programme currently being broadcast by the selected channel appear alternately for 8 seconds each.

5 INPUT CHANNEL

Press the NUMBER keys to input the channel number you want to store.

- Input "0" before any single number entries.
- To input the registered station name (ID - pg. 51), press $\triangleright$ until "----" (ID setting) begins blinking, then press Δ .
- For fine tuning adjustment, press $\triangleright$ until "+/-" begins blinking, then press Δ . While tuning, "+" or "-" appears.
- When storing a channel that sends scrambled broadcasts, press $\triangleright$ until "OFF" (Decoder setting) blinks, then press Δ to set "DECODER" to "ON" ("OFF" is the default setting).
- When "AV2 SELECT" is set to "AV2", the "DECODER" setting cannot be changed (pg. 37).

6 ENTER NEW CHANNEL INFORMATION

Press OK and the Confirmation screen appears.

- Repeat steps 3 through 6 as necessary.

7 CLOSE CONFIRMATION SCREEN

Press MENU.

- To change positions, see "Change Station Channel Position" (pg. 49).
- If you wish to set station names other than the ones registered in your recorder, "Set Stations (B)" on page 50.

ATTENTION

After you have stored channels manually, be sure to perform Guide Program Number Set (pg. 53) in order to get proper results from ShowView timer recording.

Delete A Channel

Perform steps 1 and 2 of "Storing Channels Manually" on page 48 to access the Confirmation screen before continuing.

1 SELECT ITEM

Press Δ until the item you want to delete begins blinking.

2 DELETE CHANNEL

Press X.

- The item directly beneath the cancelled one moves up one line.
- Repeat steps 1 and 2 as necessary.

3 CLOSE CONFIRMATION SCREEN

Press MENU.

Change Station Channel Position

Perform steps 1 and 2 of "Storing Channels Manually" on page 48 to access the Confirmation screen before continuing.

1 SELECT ITEM

Press Δ until the item you want to move begins blinking. Then press OK and the station name (ID) and its channel (CH) number begin blinking.

2 SELECT NEW POSITION

Press Δ to move the station to the new channel position, then press OK.

Example: If you moved the station in position 4 to position 2, the stations originally in positions 2 and 3 each move down one space.

PR	CH	ID	PR	CH	ID	PR	CH	ID	PR	CH	ID
01	25	ARD	08	C26	E-SP	01	25	ARD	08	C26	E-SP
02	C09	SKY1	09	55	WEST	02	C05	RAI	09	55	WEST
03	10	ZDF	10	C24	SAT1	03	C09	SKY1	10	C24	SAT1
04	C05	RAI	11	C23	DSF	04	10	ZDF	11	C23	DSF
05	C31	BBG1	12	C23	DSF	05	C31	BBG1	12	C23	DSF
06	C32	BBG2	13	---	---	06	C32	BBG2	13	---	---
07	C33	SSAT	14	---	---	07	C33	SSAT	14	---	---

- Repeat steps 1 and 2 as necessary.

3 CLOSE CONFIRMATION SCREEN

Press MENU.

ATTENTION

After you have deleted channels or changed channel positions, be sure to perform Guide Program Number Set (pg. 53) in order to get proper results from ShowView timer recording.

When Receiving A Scrambled Broadcast

SELECT DECODER MODE

Set "AV2 SELECT" to "DECODER" (pg. 37).

ACCESS CONFIRMATION SCREEN

Perform steps 1 and 2 of "Storing Channel Manually" on page 48.

SELECT POSITION

Press Δ to select the channel position broadcasting scrambled programmes, then press OK twice.

CHANGE DECODER SETTING

Press $\triangleright$ until "OFF" (decoder setting) begins blinking, and set it to "ON" by pressing Δ .

RETURN TO CONFIRMATION SCREEN

Press OK.

- Repeat steps 3 through 5 as necessary.

CLOSE CONFIRMATION SCREEN

Press MENU.

Set Stations (A)

Set station names that are registered in your recorder.

Perform steps 1 and 2 of "Storing Channels Manually" on page 48 to access the Confirmation screen before continuing.

1 SELECT ITEM

Press Δ ∇ until the item you want begins blinking.

2 ACCESS MANUAL CHANNEL SET SCREEN

Press OK twice.

3 SELECT NEW STATION

Press $\triangleright$ until the station name (ID) begins blinking, then press Δ ∇ until the new station's name (ID) you want to store begins blinking.Registered station names (pg. 51) appear as you press Δ ∇ .

4 SWITCH STATIONS

Press OK.

- The Confirmation screen appears.
- Repeat steps 1 through 4 as necessary.

5 CLOSE CONFIRMATION SCREEN

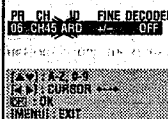
Press MENU.

Set Stations (B)

Set station names other than the ones registered in your recorder.

Perform steps 1 and 2 of "Storing Channels Manually" on page 48 to access the Confirmation screen and then perform step 1 and 2 of "Set Stations (A)" on the left before continuing.

1 SELECT STATION NAME CHARACTER

Press $\triangleright$ until the first letter of the station name begins blinking.

2 ENTER NEW CHARACTER

Press Δ ∇ to cycle through the characters (A-Z, 0-9, *, *, *, * (space)) and stop when the desired character is indicated, then press $\triangleright$ to enter. Enter the remaining characters the same way (maximum of 4). After entering all characters, press OK.

- The Confirmation screen appears.
- If you make a mistake, press Δ until the incorrect character begins blinking. Then enter the correct character by pressing Δ ∇ .

3 CLOSE CONFIRMATION SCREEN

Press MENU.

4 INPUT CHANNEL

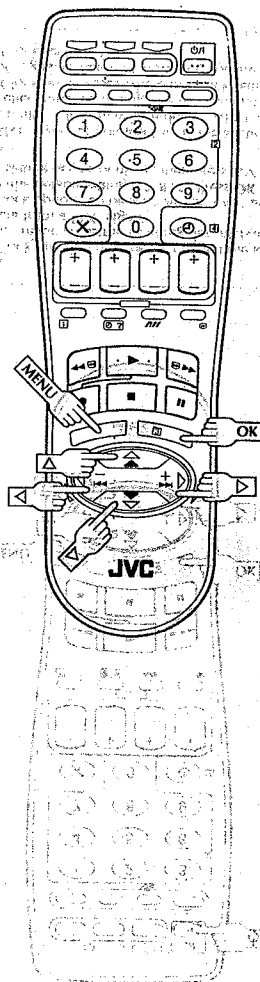
5 SELECT BAND

TV Station And ID List

ID*	STATION NAME
1000	TV1000
3SAT	3SAT
ADULT	ADULT
ANT3	ANTENA3
ARD	ARD
ARTE	ARTE
BBC	BBC GROUP
BBC1	BBC1
BBC2	BBC2
BR3	BAYERN3
CH+	CANAL PLUS
CH5	PORTUGUES
CAN5	CANAL5
CH4	CHANNEL4
CH5	CHANNEL5
CHLD	CHILD
CINE	CINEMA
CLUB	TELECLUB
CMT	CMT
CNN	CNN
CSUR	ANDALUCIA
DISC	DISCOVERY
DR	DR TV
DRS	DRS
DSF	DSF
ETB1	ETB1
ETB2	ETB2
EURO	EURONEWS
EUSP	EUROSPORTS
FEMM	FEMMAN
FILM	FILM
FILNET	FILMNET
FR2	France2
FR3	France3
GALA	GALAVISION
HR3	HESS3
INFO	INFO-KANAL
ITA1	ITALIA1
ITA7	ITALIA7
ITV	ITV
JSTV	JSTV
KA2	KA2
KAB1	KABEL1
KAN2	KANAL2
LOCA	LOCAL
M6	M6
MBC	MBR
MCM	MCM
MDR	MDR
MOVE	MOVIE
MTV	MTV
MTV3	MTV3
N3	NORD3
N-TV	N-TV
NBC	NBC SUPER
NDR3	NDR3
NED1	NED1
NED2	NED2
NED3	NED3
NEWS	NEWS
NICK	NICKELODEON
NRK	NRK
NRK2	NRK2
ODE	ODEON
ORF1	ORF1

ID*	STATION NAME
ORF2	ORF2
ORF3	ORF3
OWL3	OWL3
PREM	PREMIERE
PRO7	PRO7
RAI1	RAI1
RAI2	RAI2
RAI3	RAI3
RETE4	RETE4
21	TELE21
RTBF	RTBF1 or 2
RTL	RTL
RTL2	RTL2
RTL4	RTL4
RTL5	RTL5
RTP	SCHWEIZ4
S4	SAT1
SAT1	SAT1
SBS	SBS
SHOW	SHOW
SIC	SOCIEDADE
SKY	SKY CHANNEL
SKYN	SKY NEWS
SPRT	SPORT
SRTL	SUPER RTL
STAR	STAR-TV
SVT1	SVT1
SVT2	SVT2
SW3	SUEDWEST3
TCC	TCC
TELE	TELE
TELS	TELES
TF1	TF1
TM3	TM3
TMC	TELEMONTECARLO
TNT	TNT INT
TRT	TRT INT
TSI	TSI
TSR	TSR
TV1	BRTN-TV1
TV2	BRTN-TV2
TV3	TV3
TV4	TV4
TV5	TV5
TV6	TV6
TVE1	TVE1
TVE2	TVE2
TVG	TV GALICIA
TVI	TV INDEPENDENT
TVN	TV NORGE
VCR	VIDEO
VERO	VERONICA
VH-1	VH-1
VIVA	VIVA
VIVA2	VIVA2
VMTV	VIDEO MUSIC
VOX	VOX
VT4	VT4
VTM	VTM
WDR1	West1
WDR3	West3
YLE1	YLE1
YLE2	YLE2
ZDF	ZDF
ZTV	ZTV

*The "ID" abbreviation is what is shown on-screen in lieu of the station name. The "ID" abbreviation is listed in the Confirmation screen and is displayed on the TV screen when the recorder is tuned to a different station.



CLOCK SET

Fine-Tuning Channels Already Stored

Perform steps 1 and 2 of "Storing Channels Manually" on page 48 to access the Confirmation screen before continuing.

1 SELECT CHANNEL TO FINE-TUNE

Press Δ / ∇ until the channel you want to tune begins blinking.

2 ACCESS MANUAL CHANNEL SET SCREEN

Press OK twice. The Manual Channel Set screen appears.

3 PERFORM TUNING

Press $\triangleright$ until "+" begins blinking, then press Δ / ∇ until the picture is its clearest. Then press OK.

- The Confirmation screen appears.
- Repeat steps 1 through 3 as necessary.

4 CLOSE CONFIRMATION SCREEN

Press MENU or OK.

5 RETURN TO NORMAL SCREEN

Press MENU or OK.

6 TURN THE RECORDER ON

Press Δ / ∇ .

7 ACCESS MAIN MENU

Press MENU.

8 RETURN TO NORMAL SCREEN

Press MENU.

9 TURN THE RECORDER ON

Press Δ / ∇ .

Press Δ / ∇ until the channel you want to tune begins blinking.

Press OK twice. The Manual Channel Set screen appears.

Press $\triangleright$ until "+" begins blinking, then press Δ / ∇ until the picture is its clearest. Then press OK.

Press MENU or OK.

Press MENU or OK.

Press MENU or OK.

Press MENU or OK.

Press MENU or OK.

Press MENU or OK.

Press MENU or OK.

Press MENU or OK.

ACCESS INITIAL SET SCREEN

Press Δ / ∇ or NUMBER keys to input the number of the recorder's channel position on which the Guide Program number's broadcast is received.

GUIDE PROG TV PROG

SHOWVIEW Setup

IMPORTANT

Normally, Auto Set Up (pg. 4) or Auto Channel Set (pg. 46) sets the Guide Program Numbers automatically. You need to set the Guide Program Numbers manually only in the following cases.

- When timer-programming with ShowView, the channel position, where the station you wish to record is received on your recorder, is not selected.
- Set the Guide Program Number for that station manually.
- When you add/delete a channel or change channel positions manually after Auto Set Up or Auto Channel Set has taken place.
- Set the Guide Program Numbers for all the receivable stations manually.
- When you wish to timer-record a satellite programme with ShowView.
- Set the Guide Program Numbers for all satellite broadcasts received on your satellite tuner.

Turn on the TV and select the VIDEO channel (or AV mode).

Guide Program Number Set

1 ACCESS MAIN MENU SCREEN

Press MENU.

2 ACCESS INITIAL SET SCREEN

Press Δ / ∇ to move the highlight bar (pointer) to "INITIAL SET", then press OK or $\triangleright$.

3 ACCESS GUIDE PROG SET SCREEN

Press Δ / ∇ to move the highlight bar (pointer) to "GUIDE PROG SET", then press OK or $\triangleright$.

4 ENTER GUIDE PROG NUMBER

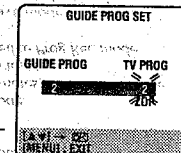
Press Δ / ∇ or NUMBER keys to enter the Guide Program number for the desired station as shown in the TV listings. Then press OK or $\triangleright$.



(Ex.) When inputting the Guide Program number 2 for ZDF.

5 ENTER RECEIVING CHANNEL POSITION NUMBER

Press Δ / ∇ or NUMBER keys to input the number of the recorder's channel position on which the Guide Program number's broadcast is received. Then press OK or $\triangleright$.



- If the satellite broadcast is received on your recorder's auxiliary channel "L-2", select "L-2" for the channel position.
- Repeat steps 4 and 5 as necessary.

6 RETURN TO NORMAL SCREEN

Press MENU.

Guide Program Number

"Guide Program (GUIDE PROG) number" refers to the assigned TV station numbers, according to broadcast area, for ShowView timer recording. The Guide Program numbers can be found in most TV listings.

Press Δ / ∇ or NUMBER keys to input the number of the recorder's channel position on which the Guide Program number's broadcast is received.

Press OK or $\triangleright$.

Press OK or $\triangleright$.

Press OK or $\triangleright$.

Press OK or $\triangleright$.

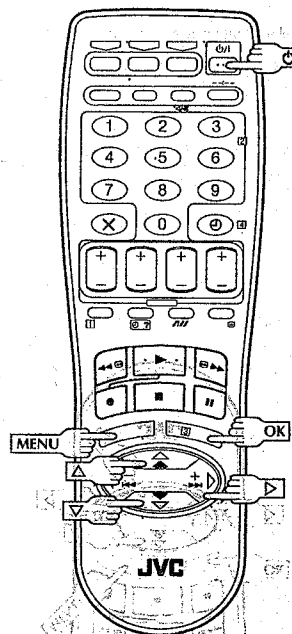
Press OK or $\triangleright$.

Press OK or $\triangleright$.

Press OK or $\triangleright$.

Clock Set

Turn on the TV and select the VIDEO channel (or AV mode).



Just Clock

The Just Clock function provides accurate time keeping through automatic adjustments at regular intervals, by reading data from a PDC signal.

The Just Clock option can be set "ON" or "OFF" at the Clock Set screen (the default setting is "OFF"). Press OK until the Just Clock setting begins blinking, then press Δ / ∇ to change the setting.

IMPORTANT: If you turn off Just Clock, the accuracy of your recorder's built-in clock may be reduced, which could adversely affect timer recording. We recommend you to keep Just Clock on. In cases where the clock setting data from a PDC signal is incorrect, however, you are advised to keep Just Clock set to "OFF".

IMPORTANT

If you performed Auto Set Up (pg. 4) or Auto Channel Set (pg. 46), without ever having set the clock previously, the recorder's built-in clock is also set automatically. Perform the following steps only if —

- Auto Clock Set has not been performed correctly by Auto Set Up or Auto Channel Set.
- the recorder's memory backup has expired.
- you want to change Just Clock setting ("Just Clock" in the left column).

TURN THE RECORDER ON

Press Δ / ∇ .

ACCESS MAIN MENU SCREEN

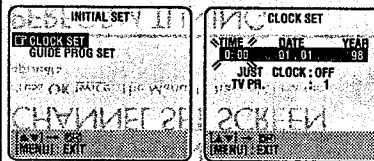
Press MENU.

ACCESS INITIAL SET SCREEN

Move the highlight bar (pointer) to "INITIAL SET" by pressing Δ / ∇ , then press OK or $\triangleright$.

ACCESS CLOCK SET SCREEN

Move the highlight bar (pointer) to "CLOCK SET" by pressing Δ / ∇ , then press OK or $\triangleright$. The Clock Set screen appears.



SET DATE AND TIME

Press Δ / ∇ to set the time, then press OK or $\triangleright$. The "date" display begins blinking. Repeat the same procedure to set the date and year.

- When you set the time, press and hold Δ / ∇ to change the time by 30 minutes.
- When you set the date, press and hold Δ / ∇ to change the date by 15 days.

Already stored
line-inning channels

SET JUST CLOCK

The default setting is "OFF". Set as desired by pressing Δ / ∇ , then press OK or $\triangleright$.

- For the just clock function, see "Just Clock" on page 54.
- If you set to "OFF", you can disregard the next step as you won't be able to receive regular clock adjustments.

SET CLOCK DATA SOURCE CHANNEL POSITION

The recorder is preset to receive clock setting and adjustment data from channel position 1. Press Δ / ∇ to set the channel position to the number representing the station transmitting clock setting data, then press OK or $\triangleright$.

START CLOCK OPERATION

Press MENU.

NOTES:

- Just Clock (when set to "ON") adjusts the recorder's built-in clock every hour, except for 23:00, 0:00, 1:00 and 2:00.
- Just Clock is not effective when...
 - the recorder's power is on.
 - the recorder is in the Timer mode.
 - a difference of more than 3 minutes exists between the built-in clock's time and the actual time.
 - the recorder is in the Auto Satellite Prog Rec mode (pg. 32).
 - the recorder is in the Power Save mode (pg. 9).
- If Just Clock is set to "ON", the recorder's clock is automatically adjusted at the start/end of Summer Time.
- Just Clock may not function properly depending on the reception condition.

IMPORTANT

SHOWVIEW 261ub

Before requesting service for a problem, use this chart and see if you can repair the trouble yourself. Small problems are often easily corrected, and this can save you the trouble of sending your video recorder off for repair.

POWER		
SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. No power is applied to the recorder.	• The mains power cord is disconnected.	Connect the mains power cord.
2. The clock is functioning properly, but the recorder cannot be powered.	• "Q" is displayed on the display panel with Auto Timer set to "OFF".	Press the Q button to turn the "Q" indicator off; the slot where the tab
3. The remote control won't function.	• The batteries are discharged.	Replace the dead batteries with new ones. (pg. 45)
TAPE TRANSPORT		
SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. The tape does not run during recording.	• "Q" is displayed on the display panel.	Press PLAY to turn the "Q" indicator off.
2. The tape will not rewind or fast-forward.	• The tape is already fully rewound or fast-forwarded.	Check the cassette.
PLAYBACK		
SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. The playback picture does not appear while the tape is running.	• If you're using the RF OUT connection... the TV receiver's channel selector is not set to the VIDEO channel. the recorder's VIDEO channel has not been correctly set. • If you're using the AV connection, the TV receiver is not set to the AV mode.	If you are using the RF OUT connection... set the TV receiver to the VIDEO channel. (pg. 5) ... perform "Video Channel Set". (pg. 45) If you are using the AV connection, set the TV to its AV mode.
2. Noise appears during normal playback.	• The automatic tracking mode is engaged.	Try manual tracking. (pg. 14)
3. The playback picture is blurred or interrupted while TV broadcasts are clear.	• The video heads may be dirty.	Consult your JVC dealer.
4. Breaks are noticeable in Hi-Fi soundtrack.	• Automatic tracking is engaged.	Engage and adjust tracking manually. (pg. 14)
RECORDING		
SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Recording cannot be started.	• There is no cassette loaded, or the cassette loaded has had its Record Safety tab removed.	Insert a cassette, or using adhesive tape, reseal the slot where the tab was removed.
2. TV broadcasts cannot be recorded.	• "L-1", "L-2", or "F-1" has been selected as the input mode.	Set to the desired channel.
3. Tape-to-tape editing is not possible.	• The source (another video recorder, camcorder) has not been properly connected. • All necessary power switches have not been turned on. • The input mode is not correct.	Confirm that the source is properly connected. Confirm that all units' power switches are turned on. Set the input mode to "L-1", "L-2" or "F-1".
4. Camcorder recording is not possible.	• The camcorder has not been properly connected. • The input mode is not correct.	Confirm that the camcorder is properly connected. Set the input mode to "L-1", "L-2" or "F-1".

TIMER RECORDING

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Timer recording won't work.	• The clock and/or the timer have been set incorrectly. • The timer is not engaged.	Re-perform the clock and/or timer settings. Press Q and confirm that "Q" is displayed on the display panel.
2. Timer programming is not possible.	• Timer recording is in progress.	Timer programming can't be performed while a timer recording is in progress. Wait until it finishes.
3. "Q" and "Q" on the display panel won't stop blinking.	• The timer is engaged but there's no cassette loaded.	Load a cassette with the Record Safety tab intact, or cover the hole using adhesive tape.
4. The cassette is automatically ejected, and "Q" and "Q" on the display panel won't stop blinking.	• The loaded cassette has had its Record Safety tab removed.	Remove the cassette and cover the hole with adhesive tape, or insert a cassette with the Record Safety tab intact.
5. "Q" blinks for 10 seconds and the Timer mode is disengaged.	• Q has been pressed when there are no programs in memory, or the timer record information has been programmed incorrectly.	Check the programmed data and re-program as necessary, then press Q again.
6. The cassette is automatically ejected, the power shuts off and "Q" and "Q" won't stop blinking.	• The end of the tape was reached during timer recording.	The programme may not have been recorded in its entirety. Next time make sure you have enough time on the tape to record the entire programme.
7. ShowView does not timer-record properly.	• The recorder's channel positions have been set incorrectly.	Refer to "Guide Program Number Set" and re-perform the procedure (pg. 53).

OTHER PROBLEMS

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Whistling or howling is heard from the TV during camcorder recording.	• The camcorder's microphone is too close to the TV. • The TV's volume is too high.	Position the camcorder so its microphone is away from the TV. Turn the TV's volume down.
2. When scanning channels, some of them are skipped over.	• Those channels have been designated to be skipped.	If you need the skipped channels, restore them (pg. 48).
3. The channel cannot be changed.	• Recording is in progress.	Press PAUSE to pause the recording, change channels, then press PLAY to resume recording.
4. Channel settings that were made manually seem to have changed or disappeared.	• After the manual settings were made, Auto Channel Set was performed.	Perform manual setting again.
5. No channels are stored in the recorder's memory.	• The TV aerial cable was not connected to the recorder when Auto Set Up was performed.	Connect the TV aerial cable to the recorder properly and turn off the recorder power once, then turn the recorder power back on again. The recorder will try Auto Set Up again (pg. 4).
6. The remote control won't operate the TV or satellite tuner.	• The remote control brand setting is incorrect.	Re-set the remote control to the correct brand (pg. 34, 35).

PLAYBACK

Q. What happens if the end of the tape is reached during playback or search?

A. The tape is automatically rewound to the beginning.

Q. Can the video recorder indefinitely remain in the still mode?

A. No. It stops automatically after 5 minutes to protect the heads.

Q. When returning from multi-speed search to normal playback, the picture is disturbed. Should I be concerned about this?

A. No, it is normal.

Q. Other than preventing further recording, what effect does removing the Record Safety tab have?

A. It disables marking of index codes.

Q. Sometimes, during Index Search, the video recorder can't find the programme I want to see. Why not?

A. There may be index codes too close together.

RECORDING

Q. When I pause and then resume a recording, the end of the recording before the pause is overlapped by the beginning of the continuation of recording. Why does this happen?

A. This is normal. It reduces distortion at the pause and resume points.

Q. Can the video recorder indefinitely remain in the Record-Pause mode?

A. No. The video recorder goes to its Stop mode automatically after 5 minutes to protect the heads.

Q. What happens if the tape runs out during recording?

A. The video recorder automatically rewinds it to the beginning.

ATTENTION

This recorder contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the recorder off and unplug the mains power cord. Then plug it in again and turn the recorder on. Take out the cassette. After checking the cassette, operate the unit as usual.

TIMER RECORDING

Q. "O" and "P" remain lit on the display panel. Is there a problem?

A. No. This is a normal condition for a timer recording in progress.

Q. Can I programme the timer while I'm watching a tape or a TV broadcast?

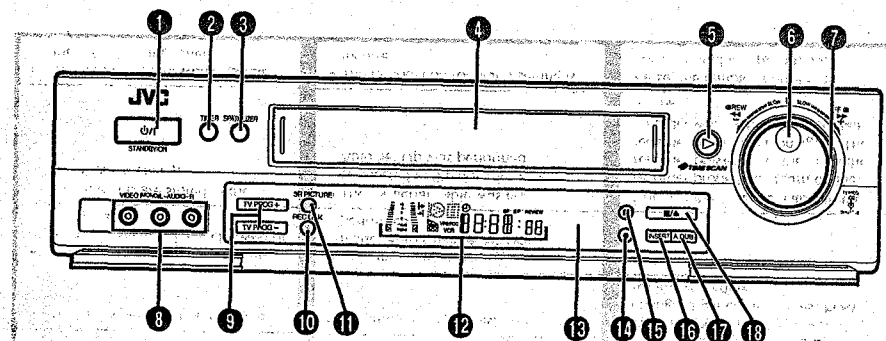
A. You won't see the picture as it is replaced by the on-screen menu, but the audio from the programme or tape you're viewing can be heard.

Q. Is it possible to timer-record a TV programme broadcast in 2000?

A. Yes, it is possible.

INDEX

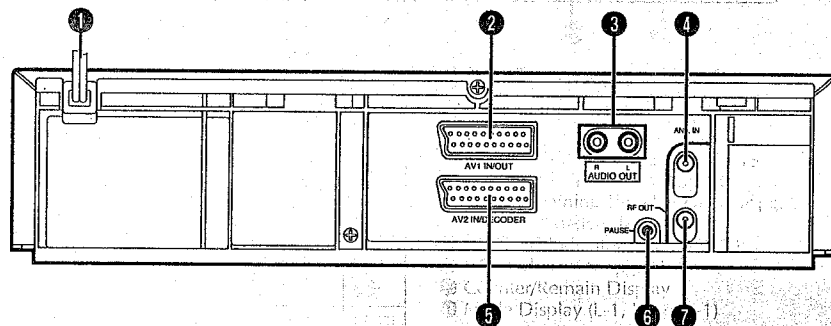
FRONT VIEW



Attach the provided connector cover when you do not use the front panel connectors.

- | | |
|--|--|
| 1 STANDBY/ON ϕ /I Button $\Rightarrow$ pg. 4 | 10 REC LINK Button $\Rightarrow$ pg. 32 |
| 2 TIMER Button $\Rightarrow$ pg. 27, 29 | 11 3R PICTURE Button $\Rightarrow$ pg. 14 |
| 3 SPATIALIZER Button $\Rightarrow$ pg. 16 | 12 Display Panel $\Rightarrow$ pg. 60 |
| 4 Cassette Loading Slot | 13 Infrared Beam Receiving Window |
| 5 PLAY Button $\Rightarrow$ pg. 11 | 14 RECORD Button $\Rightarrow$ pg. 20 |
| 6 TV PROG Dial $\Rightarrow$ pg. 20 | 15 PAUSE Button $\Rightarrow$ pg. 12, 13 |
| 7 JOG Dial $\Rightarrow$ pg. 12, 13 | 16 INSERT Button $\Rightarrow$ pg. 40 (HR-DD858E/EH) |
| 8 TIME SCAN SHUTTLE Ring $\Rightarrow$ pg. 12 (HR-DD858E/EH) | 17 SP/LP Button $\Rightarrow$ pg. 20 (HR-J758E/EH) |
| 9 SHUTTLE Ring $\Rightarrow$ pg. 13 (HR-J758E/EH) | 18 A: DUB [Audio Dubbing] Button $\Rightarrow$ pg. 39 (HR-DD858E/EH) |
| 10 VIDEO/AUDIO Input Connectors $\Rightarrow$ pg. 38 | |
| 11 TV PROG +/- Buttons $\Rightarrow$ pg. 20 | 19 DISPLAY Button $\Rightarrow$ pg. 21 (HR-J758E/EH) |
| | 20 STOP/EJECT Button $\Rightarrow$ pg. 11 |

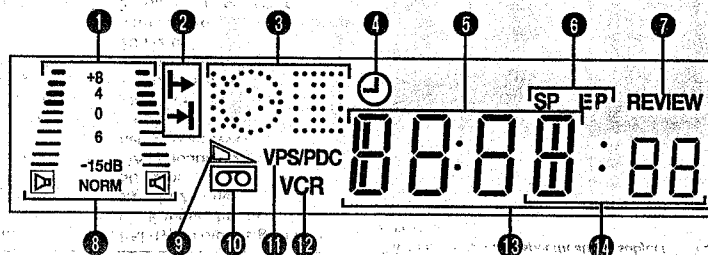
REAR VIEW



- 1 Mains Power Cord pg. 3
- 2 AV1 IN/OUT Connector pg. 3, 36
- 3 AUDIO OUT (L/R) Connectors pg. 44
- 4 ANT. IN Connector pg. 3

- 5 AV2 IN/DECODER Connector pg. 37, 42, 43
- 6 Remote PAUSE Connector pg. 38
- 7 RF OUT Connector pg. 3

DISPLAY PANEL



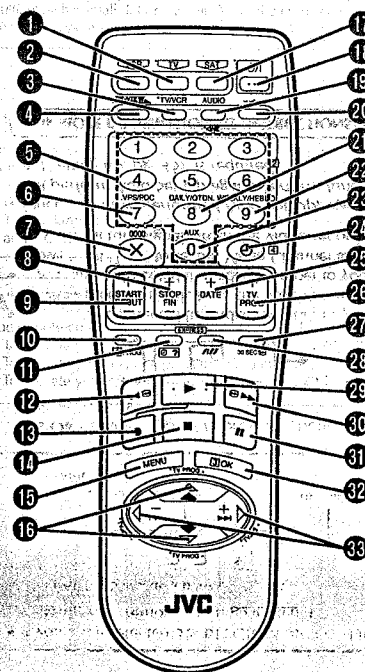
- 1 B.E.S.T. Picture System Display pg. 24
- 2 Audio Level Indicator pg. 23
- 3 Programme Time Indicators pg. 28
- 4 Symbolic Mode Indicators

- 5 "Timer" Indicator pg. 27, 29
- 6 Channel/Clock Display pg. 6
- 7 Tape Speed Indicators pg. 20
- 8 Instant REVIEW Indicator pg. 15
- 9 Audio Mode Indicator pg. 16
- 10 Tape Remaining Time Indicator pg. 21
- 11 "Cassette Loaded" Mark
- 12 VPS/PDC Indicator pg. 27, 29
- 13 VCR Indicator pg. 21
- 14 Counter/Remain Display
- 15 Mode Display (L-1, L-2 or F-1)

PLAY: FF/REW VARIABLE SHUTTLE SEARCH:	▶	STILL: SLOW:	▶
		RECORD:	○
		RECORD PAUSE:	○
AUDIO DUBBING*:			
AUDIO DUBBING PAUSE*:			
INSERT*:			
INSERT PAUSE*:			
AUDIO DUBBING INSERT*:			
AUDIO DUBBING INSERT PAUSE*:			

*HR-DD85BE/EH only.

REMOTE CONTROL



Buttons with a small dot on the left side of the name can also be used to operate your TV pg. 34.

- 1 TV Button pg. 34
- 2 VCR Button pg. 34
- 3 TV/VCR Button pg. 21, 34
- 4 REVIEW Button pg. 15
- 5 NUMBER Keys pg. 20, 26
- 6 VPS/PDC Button pg. 27, 29
- 7 X Button pg. 30
- 8 0000 Button pg. 21
- 9 STOP +/- Button pg. 28
- 10 START +/- Button pg. 28
- 11 PROG Button pg. 26
- 12 ? Button pg. 30
- 13 Rewind [REW] Button pg. 11, 12, 13
- 14 Record Button pg. 20
- 15 Stop Button pg. 11, 20
- 16 MENU Button pg. 7
- 17 Delta/Up Button pg. 4
- 18 TV PROG +/- Button pg. 34
- 19 SAT Button pg. 35
- 20 STANDBY/ON/OFF Button pg. 4
- 21 AUDIO Button pg. 16
- 22 Mute (TV Muting) Button pg. 34
- 23 DISPLAY Button pg. 21
- 24 DAILY Button pg. 27, 29
- 25 WEEKLY Button pg. 27, 29
- 26 AUX Button pg. 36
- 27 0 Button pg. 27, 29
- 28 DATE +/- Button pg. 28
- 29 TV PROG +/- Button pg. 20
- 30 30 SEC Button pg. 15
- 31 Auto Tracking Button pg. 14
- 32 SP/LP Button pg. 20
- 33 Play Button pg. 11
- 34 Fast Forward [FF] Button pg. 11, 12, 13
- 35 Pause Button pg. 12, 13
- 36 OK Button pg. 5
- 37 Left/Right Button pg. 12, 13, 15
- 38 TV +/- Button pg. 34

How To Use

The remote control can operate most of your video recorder's functions, as well as basic functions of TV sets and satellite tuners of JVC and other brands pg. 34, 35.

- Point the remote control toward the sensor window.
- The maximum operating distance of the remote control is about 8 m.

NOTES:

- When inserting the batteries, be sure to insert in the correct directions as indicated under the battery cover.
- If the remote control doesn't work properly, remove its batteries, wait a short time, replace the batteries and then try again.

ATTENTION

- The remote control can operate not only the video recorder but also some of your TV and satellite tuner's functions.
- To operate your video recorder, first press the VCR button to set the remote control to the Video mode.
- To operate your TV, first press the TV button to set the remote control to the TV mode (pg. 34).
- To operate your satellite tuner, first press the SAT button to set the remote control to the Satellite tuner mode (pg. 35).

GENERAL

Power requirement	: AC 220 - 240 V~, 50/60 Hz
Power consumption	
Power on	: 24 W
Power off	: 5.5 W
Power save (HR-J758E and HR-DD858E only)	: 3 W
Temperature	
Operating	: 5°C to 40°C
Storage	: -20°C to 60°C
Operating position	: Horizontal only
Dimensions (WxHxD)	: 400 x 94 x 347 mm
Weight	: 3.8 kg
Format	: VHS PAL standard
Maximum recording time	
(SP)	: 240 min. with E-240 video cassette
(LP)	: 480 min. with E-240 video cassette

VIDEO/AUDIO

Signal system	: PAL-type colour signal and CCIR monochrome signal, 625 lines, 50 fields
Recording system	: DA4 (Double Azimuth) head, helical scan system
Signal-to-noise ratio	: 45 dB
Horizontal resolution	: 250 lines
Frequency range	: 70 Hz to 10,000 Hz (Normal audio) 20 Hz to 20,000 Hz (Hi-Fi audio)
Input/Output	: 21-pin scart connectors : IN/OUT x 1, IN/DECODER x 1 RCA connectors: VIDEO IN x 1, AUDIO IN x 1, AUDIO OUT x 1

TUNER/TIMER

TV channel storage capacity	: 99 positions (+AUX position)
Tuning system	: Frequency synthesized tuner
Channel coverage	: VHF 47 - 89/104 - 300/ 302 - 470MHz UHF 470 - 862MHz UHF channels 22 - 69 (Adjustable)
Aerial output	: UHF channels 22 - 69 (Adjustable)
Memory backup time	: Approx. 60 min.

ACCESSORIES

Provided accessories	: RF cable, Infrared remote control unit, "R6" battery x 2, Connector cover (for front panel connectors)
----------------------	---

Specifications shown are for SP mode unless otherwise specified.

E. & O.E. Design and specifications subject to change without notice.

International Telephone
Country Code

Language Code

ENGLISH
FRENCH
GERMAN
ITALIAN
JAPANESE
SPANISH
PORTUGUESE
DUTCH
SWEDISH
DANISH
FINNISH
NORWEGIAN
POLISH
CZECH
SLOVAK
HUNGARIAN
ROMANIAN
BULGARIAN
GREEK
TURKISH
ARABIC
HEBREW
RUSSIAN
UKRAINIAN
CROATIAN
SERBIAN
MONTENEGRO
MACEDONIAN
ALBANIAN
BOSNIAN
HERZEGOVINIAN
SLOVENIAN
CROATIAN
SERBIAN
MONTENEGRO
MACEDONIAN
ALBANIAN
BOSNIAN
HERZEGOVINIAN
SLOVENIAN

Auto Set Up - referring to the display panel

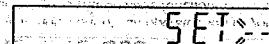
The Auto Set Up function sets the tuner channels, clock, Guide Program numbers and video channel* automatically.

* Useful for RF connection users.

BEFORE YOU START PLEASE MAKE SURE THAT:

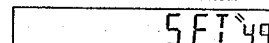
- The TV aerial cable is connected to the ANT.IN jack on the rear panel of the video recorder.
- The video recorder's mains power cord is connected to a mains outlet.
- The video recorder is turned off.
- Load batteries into the remote control.

1 Press (recorder/remote).



2 Press (remote) to select the international telephone country code.

(Ex.) DEUTSCHLAND is selected.



- If you have selected a country code other than 32 (BELGIUM) or 41 (SUISSE), go to step 3.

International Telephone Country Code			
SUISSE	: 41	SUOMI	: 358
ITALIA	: 39	PORTUGAL	: 351
ESPAÑA	: 34	DEUTSCHLAND	: 49
BELGIUM	: 32	NORGE	: 47
NEDERLAND	: 31	SVERIGE	: 46
GREECE	: 30	DANMARK	: 45
OTHERS	: --	ÖSTERREICH	: 43

- If you have selected 32 (BELGIUM) or 41 (SUISSE), press **OK** (remote) and select the language code by pressing (remote), then go to step 3.

(Ex.) FRANCAIS is selected for BELGIUM



International Telephone
Country Code

Language Code

Language Code			
ENGLISH	: 01	NEDERLANDS	: 06
DEUTSCH	: 02	SVENSKA	: 07
FRANCAIS	: 03	NORSK	: 08
ITALIANO	: 04	SUOMI	: 09
CASTELLANO	: 05	DANSK	: 10

3 Press **OK** (remote). Do NOT press any button on the video recorder or remote control until the display panel shows as follows.



- If "OUT 36" appears on the display panel, see page 6 of the instructions.

- If you have connected the video recorder to your TV via RF connection, press **OK** to finish the Auto Set Up. To view picture signals from the video recorder, set your TV to the Video Channel.
- If you have connected the video recorder to your TV via AV connection, press **TV PROG** - until the display panel shows "OUT 36" to set the Video Channel to off, then press **OK** to finish the Auto Set Up. To view picture signals from the video recorder, set your TV to its AV mode.

- Once you have performed Auto Set Up, even if the recorder's memory backup has expired, the recorder will not perform Auto Set Up again. Perform tuner setting (pg. 46), clock setting (pg. 54) and/or Video Channel setting (pg. 45) as required.

FOR MORE INFORMATION SEE INSTRUCTIONS/P4

NEWEST CONTROL

JVC

VICTOR COMPANY OF JAPAN, LIMITED

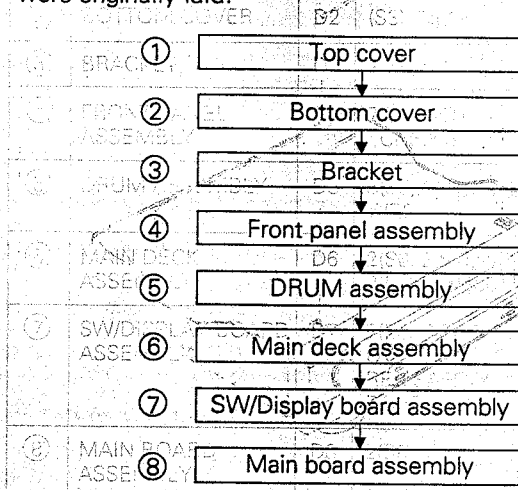
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SECTION 1 DISASSEMBLY

1.1 DISASSEMBLY FLOW CHART

This flowchart lists the disassembling steps for the cabinet parts and P.C. boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally laid.



<NOTE1>

- Before attaching the Front panel assembly, ensure that the door opener ⑥ is in the lowered position.

1.2 HOW TO READ THE DISASSEMBLY AND ASSEMBLY

STEP / LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	4(S1), (S2)	
②	BOTTOM COVER	D2	(S3), 7(L1)	
③	BRACKET	D3	2(S4)	

- The Main deck assembly is also retained by two spacers on the Main board. Therefore, to remove the Main deck assembly, insert radio pliers or a similar tool from the main deck side and pinch the two hooks of the spacers while removing.

(1) Order of steps in Procedure

When reassembling, perform the step(s) in the reverse order. These numbers are also used as the identification (location) NO. of parts Figures.

- Part name to be removed or installed.
- Fig.No. showing procedure or part location
- Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or unsoldered. P = Spring, W = Washer, S = Screw, L = Locking tab, * = Unhook, unlock, release, unplug or unsolder.
- Adjustment information for installation

1.3 DISASSEMBLY/ASSEMBLY METHOD

STEP / LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	4(S1), (S2)	
②	BOTTOM COVER	D2	(S3), 7(L1)	
③	BRACKET	D3	2(S4)	
④	FRONT PANEL ASSEMBLY	D4	7(L2), WR1 *CN3006	<NOTE 1> <NOTE 2>
⑤	DRUM ASSEMBLY	D5	3(S5), CN1, WR2, WR3	<NOTE 2>
⑥	MAIN DECK ASSEMBLY	D6	2(S6), 2(S7), WR4 2(L3), *CN4001	<NOTE 3>
⑦	SW/DISPLAY BOARD ASSEMBLY	D7	7(L4), *CN7001, CN7191, REC SAFETY BOARD (L5)	<NOTE 4>
⑧	MAIN BOARD ASSEMBLY	D8	2(S8), (L6)	

<NOTE1>

- Before attaching the Front panel assembly, ensure that the door opener ⑥ is in the lowered position.

<NOTE2>

- When inserting the flat wire into the connector, be careful not to mistake the positioning of its electrodes.

<NOTE3>

- When it is required to remove the screws (S6) retaining the Main deck assembly, please refer to the "Procedures for Lowering the Cassette holder assembly" (See on pages 1-3).
- The Main deck assembly is also retained by two spacers on the Main board. Therefore, to remove the Main deck assembly, insert radio pliers or a similar tool from the main deck side and pinch the two hooks of the spacers while removing.
- When attaching the Main deck assembly, be careful not to damage the sensors and switches on the Main board (D3001: LED, Q3001: Start sensor, Q3002: End sensor).

<NOTE4>

- The REC safety board assembly is attached to the SW/Display board assembly. It is therefore necessary to remove the REC safety board assembly before removing the SW/Display board assembly.
- When inserting the flat wire into the connector, be careful not to mistake the positioning of its electrodes.

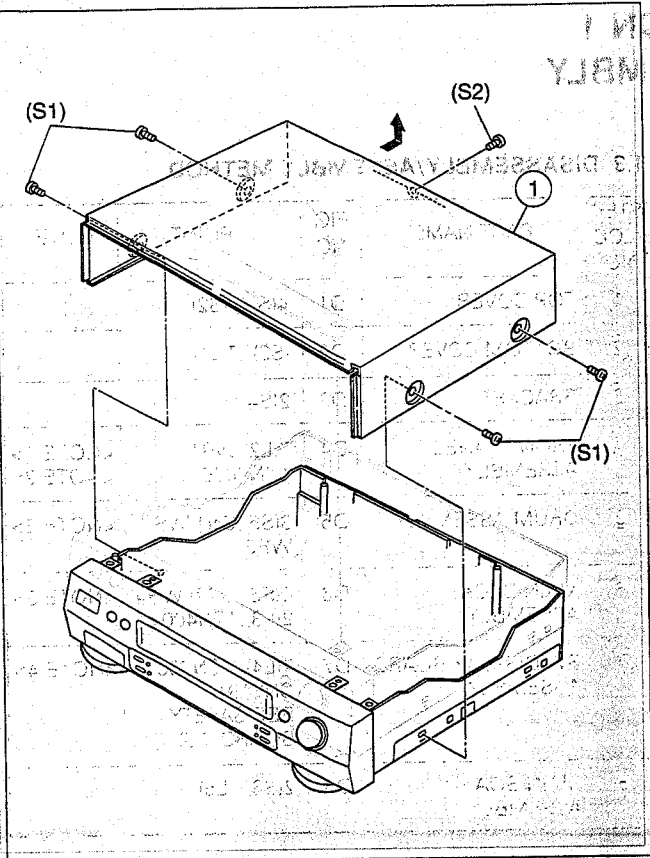


Fig. D1

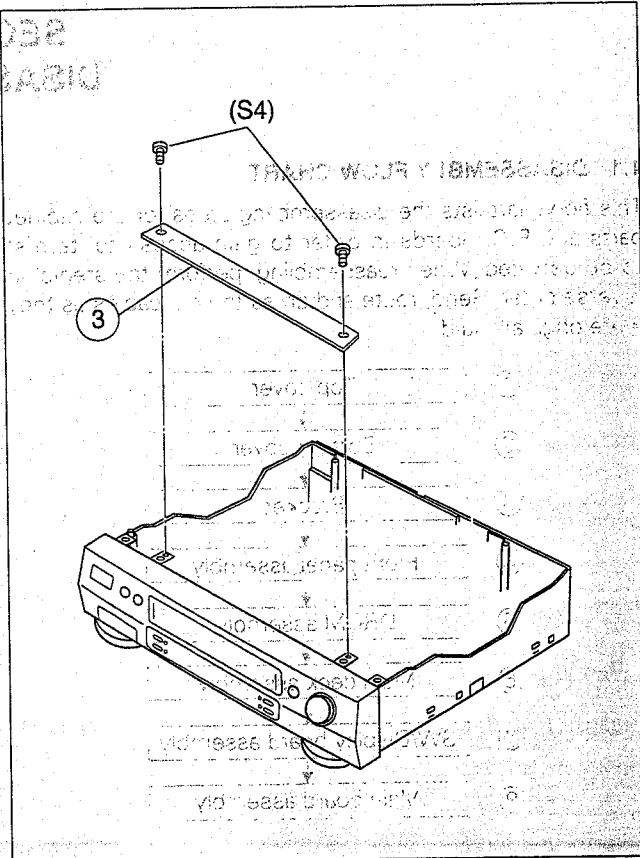


Fig. D3

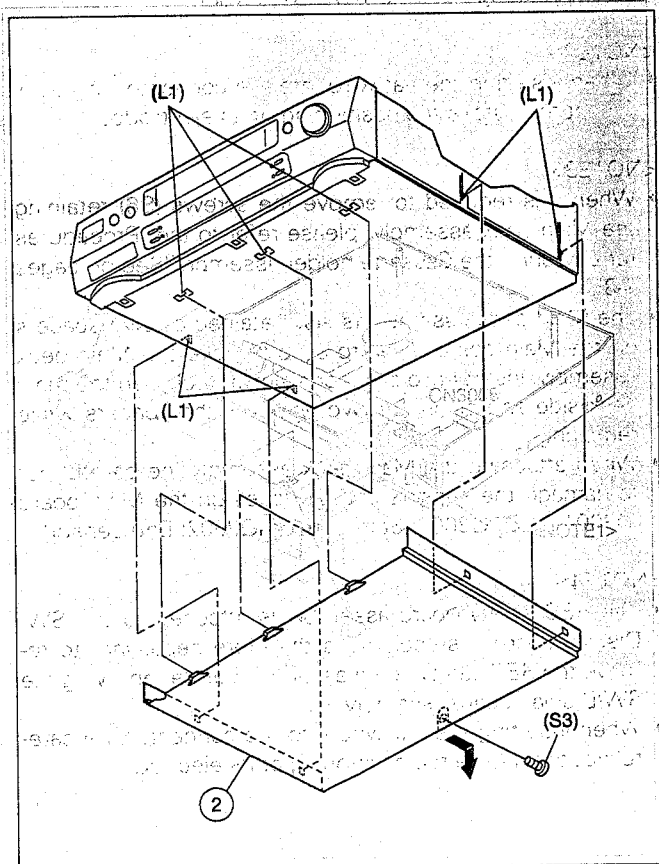


Fig. D2

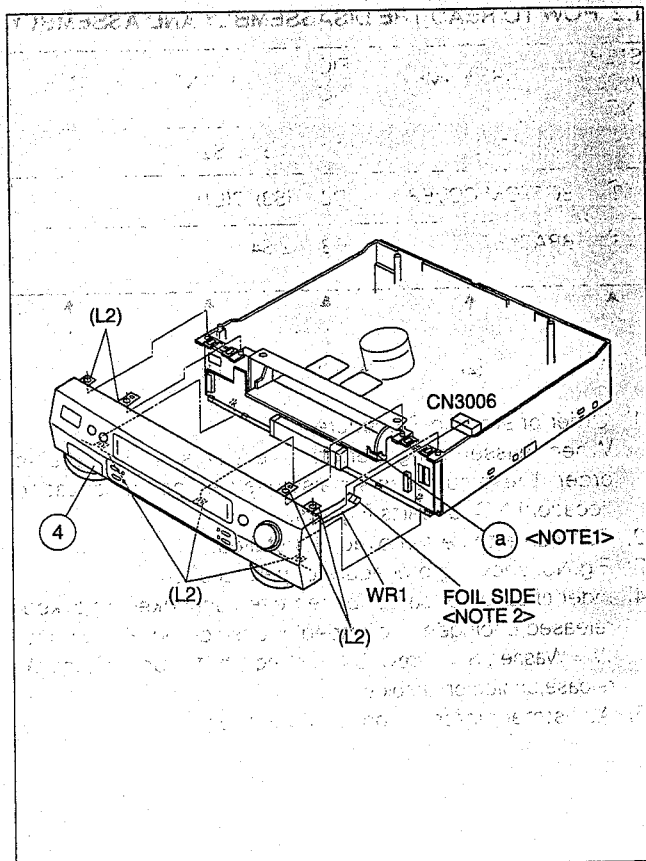


Fig. D4

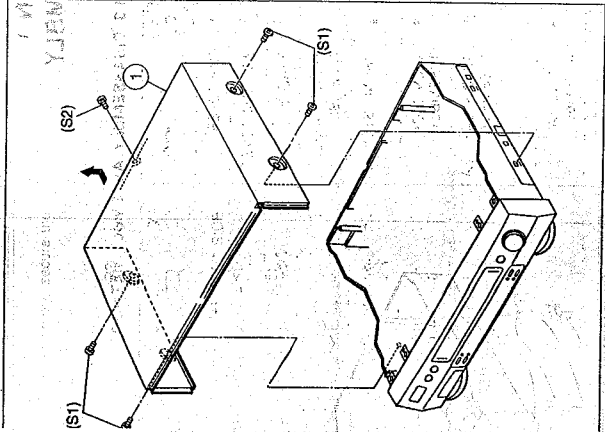


Fig. D1

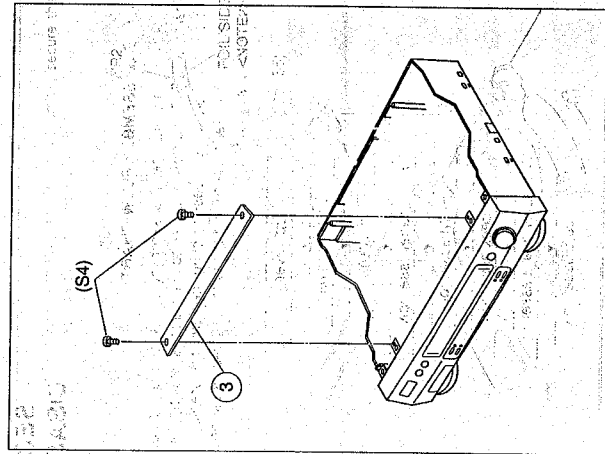


Fig. D3

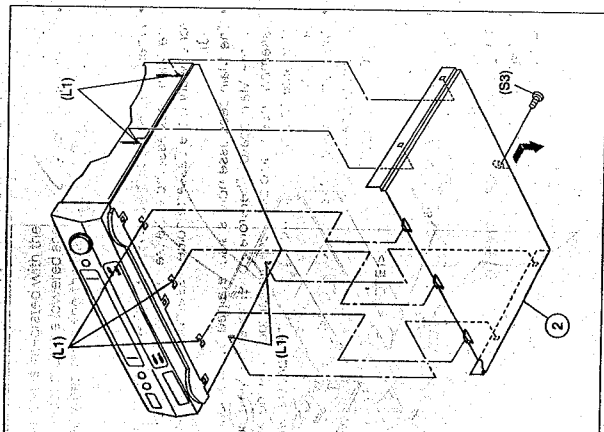


Fig. D2

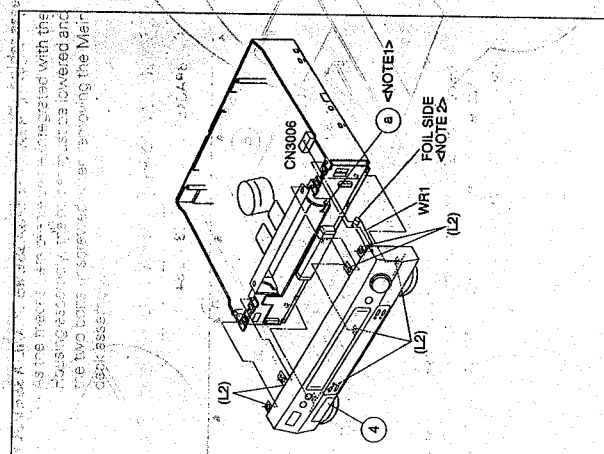


Fig. D4

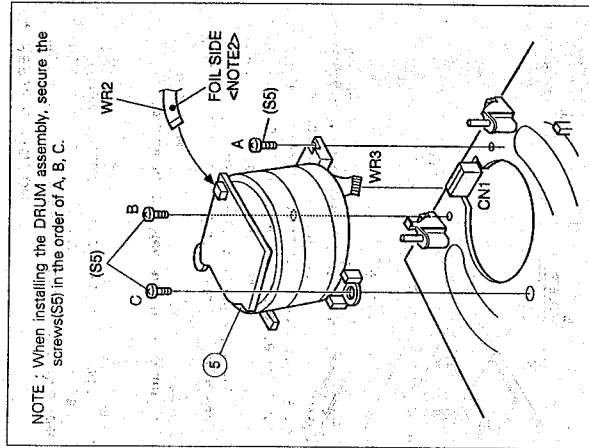


Fig. D5

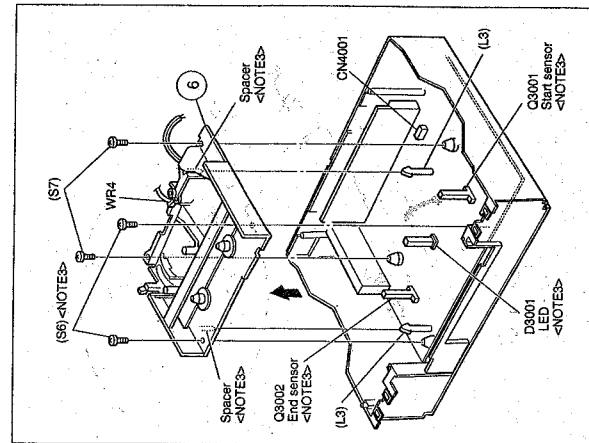
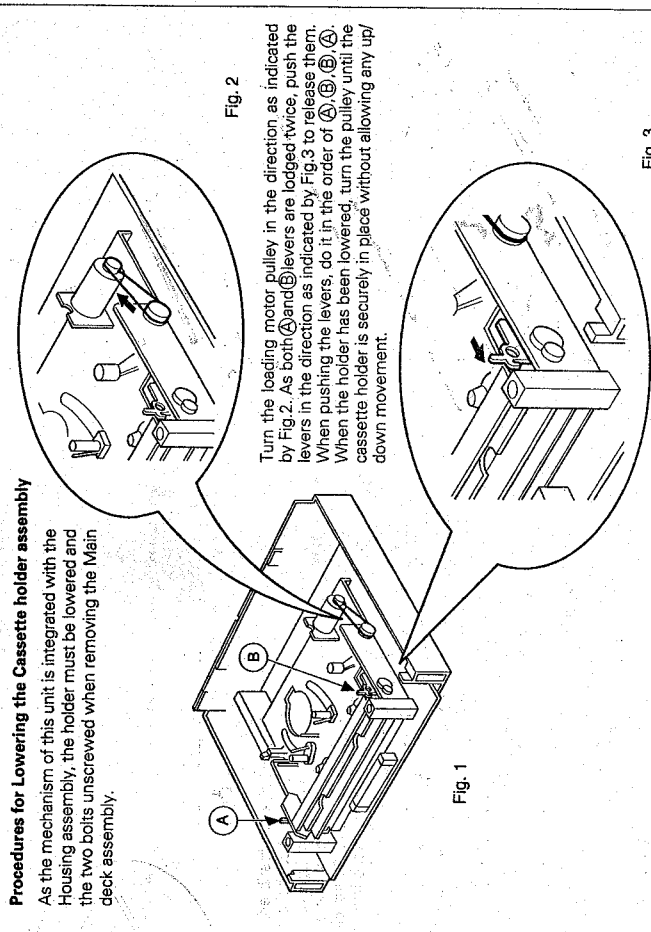


Fig. D6



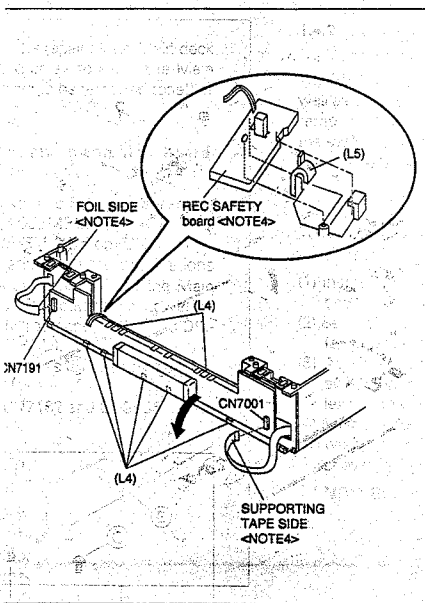


Fig. D7

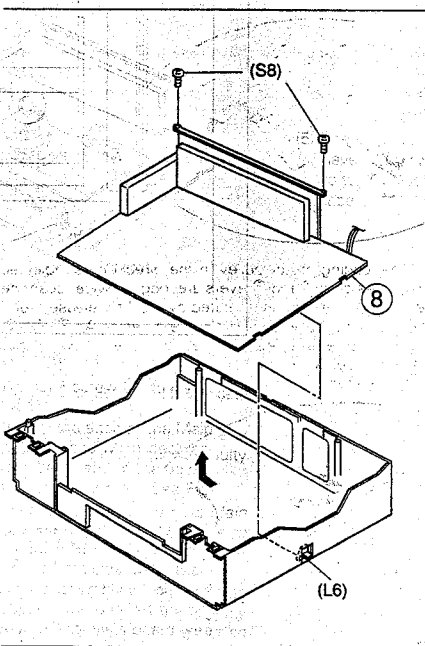


Fig. D8

1.4 SERVICE POSITION

In order to facilitate diagnosis and the repair of the Main deck assembly, this unit is constructed so as to allow the Main deck and the Main board assemblies to be removed together from the Chassis assembly.

1.4.1 How to take out the Mechanism and Main board assemblies

- (1) Remove the Top cover, Bracket and Front panel assembly. (See 1.3 DISASSEMBLY/ASSEMBLY METHOD. Take care not to pull the drum wire (Fig.D5) from CN1).
- (2) Lower the cassette holder, and make the preparations required in order to remove the screws from the Main deck assembly. (Refer to the "Procedures for Lowering the Cassette holder assembly" on pages 1-3 of 1.3 DISASSEMBLY/ASSEMBLY METHOD).
- (3) Take out 2 screws (A) and 2 screws (B) as shown in Fig. 1-4-1.
- (4) Remove the flat wires from CN7162 and CN3005 on the Main board assembly.

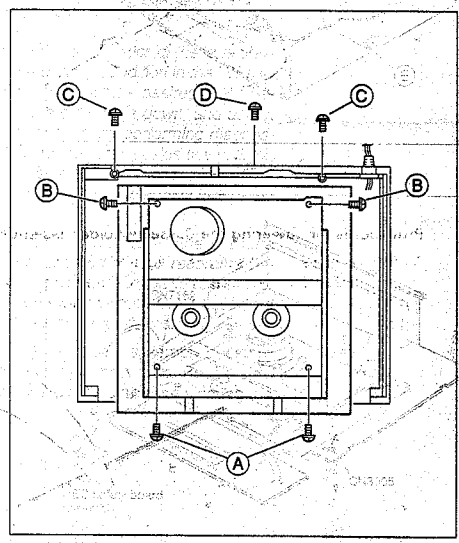


Fig. 1-4-1

- (5) Take out 2 screws (C) and take out 1 screw (D) to install the Bottom cover. (See Fig. 1-4-1).
- (6) Remove the hook (E) while holding the edge of the Main board, and remove the Main board and Main deck assemblies together. At this stage be careful of the power cord and prongs of the jacks on the back side. (See Fig. 1-4-2).
- (7) Remove the SW/Display board assembly and the REC safety board (See 1.3 DISASSEMBLY/ASSEMBLY METHOD), then place them on the front side of the Main deck assembly and the Main board assembly which have been disassembled by procedure (6), and insert the flat wires into CN7162 and CN3005 of the Main board (see Fig. 1-4-3).

The REC safety board assembly detects cassette loading as well as cassette tabs. Therefore, after the assembly has been removed in the "SERVICE POSITION", it is required to set the switch manually on the Rec. safety board assembly when a cassette is loaded.

1.4.2

- (1) Insert a cassette halfway in the Cassette holder assembly.
- (2) Set the switch on the REC safety board assembly to ON (by pressing the switch).
- (3) As soon as the cassette starts to be loaded, set the switch on the REC safety board assembly to OFF (by releasing the switch).
- (4) Now the desired operation (recording, playback, fast forward, rewind, etc.) is possible in this status (the status shown in Fig. 1-4-3).

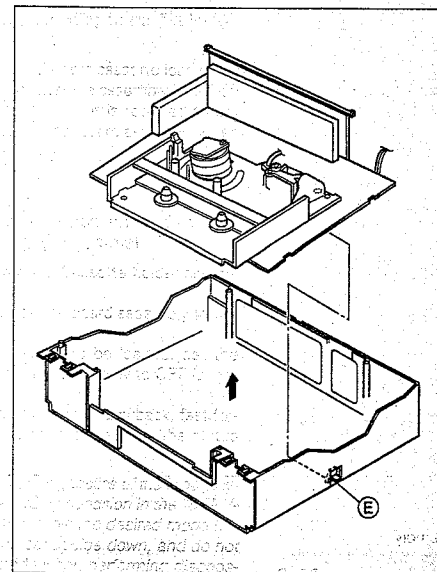


Fig. 1-4-2

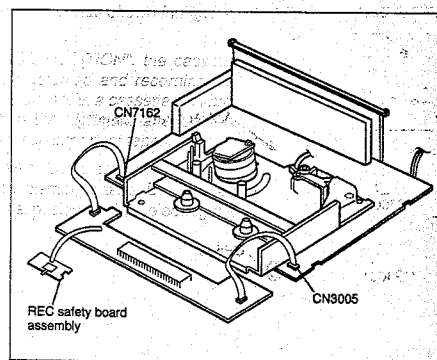


Fig. 1-4-3

- (5) Plug the power cord into an AC outlet, and lift the cassette holder. (Before turning on the power make sure that there is nothing which may produce a short circuit, such as faulty soldering.)

Note: When carrying out diagnosis and repair of the Main board assembly in the service position, be sure to ground both the Main board and the Main deck assemblies. If they are improperly grounded, there may be noise on the playback picture or the FDP counter display may move even when the mechanism is kept in an inoperative status.

1.4.2 Precautions for cassette loading in the "SERVICE POSITION"

The REC safety board assembly detects cassette loading as well as cassette tabs. Therefore, after the assembly has been removed in the "SERVICE POSITION", it is required to set the switch manually on the Rec. safety board assembly when a cassette is loaded.

1.4.3 Cassette loading and ejection methods in the "SERVICE POSITION" (See Fig. 1-4-3).

- (1) Insert a cassette halfway in the Cassette holder assembly.
- (2) Set the switch on the REC safety board assembly to ON (by pressing the switch).
- (3) As soon as the cassette starts to be loaded, set the switch on the REC safety board assembly to OFF (by releasing the switch).
- (4) Now the desired operation (recording, playback, fast forward, rewind, etc.) is possible in this status (the status shown in Fig. 1-4-3).

NOTES: • When performing diagnostics of the tape playback or the recording condition in the "SERVICE POSITION", enter the desired mode before turning the set upside down, and do not change the mode when performing diagnostics while the set is placed upside down. If you want to switch the mode, turn the set to the normal position (the status shown in Fig. 1-4-3).

• In the "SERVICE POSITION", the cassette tabs cannot be detected and recording becomes possible even with a cassette with broken tabs such as the alignment tape. Be very careful not to erase important tapes.

- (5) The switch on the REC safety board assembly does not have to be operated when ejecting a tape. But be sure to turn the set to the normal position before ejecting the tape.

MECHANISM SERVICE MODE

This model has a unique function to enter the mechanism every operation mode without loading of any cassette. This function is called the "MECHANISM SERVICE MODE".

1 How to set the "MECHANISM SERVICE MODE"

Unplug the power cord from an AC outlet.
Connect TPGND and TP7001 (TEST) on the SW/Display board assembly using a jumper wire.
Plug the power cord into an AC outlet.
Set the power switch to ON.
With lock levers (A) on the left and right sides of the Cassette holder assembly are pulled toward the front, slide the holder in the same direction as the cassette insertion direction. (For the positions of lock levers (A), refer to the "Procedures for Lowering the Cassette holder assembly" on pages 1-3 of 1.3 DISASSEMBLY/ASSEMBLY METHOD.)
The cassette holder lowers and, when the loading has completed, the mechanism enters the desired mode.

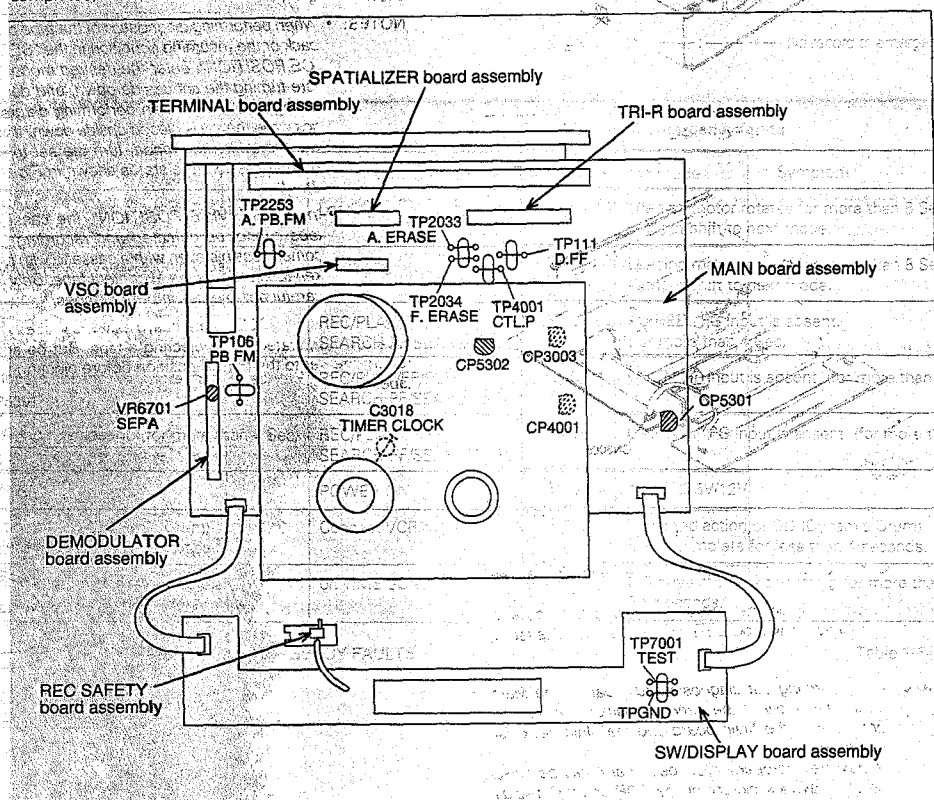


Fig. 1-5-1

1.6.3 How to clear emergency record

Press the COUNTER RESET button on the remote controller in the emergency record display mode, and the record of the emergency fault(s) is cleared.

1.6 EMERGENCY DISPLAY FUNCTION

This product has the function to store the last two previous emergency faults which can be displayed in the FDP when servicing.

1.6.1 How to display record of an emergency faults

Note: Put the unit into A mode by using the VCR remote control. (When it is in B mode, the preset remote control codes are not accepted.)

- (1) Press "N" button of the presetting unit more than 2 seconds and the two previous emergency faults are shown in the LED or FDP.
- (2) Press "N" button of the presetting unit again to return to the normal mode.

[Example] E:01:03
 ↑
 Emergency fault before last
 Emergency fault of the last time

[Example] E:---:--- ← No record of emergency

1.6.2 Detail of emergency faults

EMG DATA	Symptom	Detect mode	Resulting mode
E: 01	Loading motor rotates for more than 8 Sec without shift to next mode.	Loading	POWER OFF
E: 02	Loading motor rotates for more than 8 Sec without shift to next mode.	Unloading	POWER OFF
E: 03	TU REEL FG input is absent. (for more than 4 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E: 04	DRUM FF input is absent. (for more than 3 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E: 06	CAPSTAN FG input is absent. (for more than 4 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E: 07	No SWD5V/12V.	POWER ON	POWER OFF
E: 08	Initialized action of DD (Dynamic Drum) is not complete for less than 4 seconds.	Connect VCR to AC	STOP
E: 09	DD drive motor is not rotate for more than 2.5 seconds.	on TIME SCAN	STOP

Table 1-6-1 EMERGENCY FAULTS

SYSCON CIRCUIT

1 Syscon CPU pin function (IC3001) 1/2

IN NO.	LABEL	IN/OUT	NOTE
1	IND(L)	IN	AUDIO INPUT(LCH) FOR THE FDP AUDIO INDICATOR
2	IND(R)	IN	AUDIO INPUT(RCH) FOR THE FDP AUDIO INDICATOR
3	PERI 1S	IN	INPUT FOR THE TERMINAL SLID SW POSI IN THE SAT MODE
4	INDEX	IN/OUT	DETECTION SIGNAL FOR SERVO INDEX
5	AVSS	-	GND FOR ANALOG CIRCUIT
6	TEST	-	GND
7	X2	-	TIMER CLOCK (32.768 KHz)
8	X1	-	TIMER CLOCK (32.768 KHz)
9	VSS	-	GND
10	OSC1	-	MAIN SYSTEM CLOCK (10 MHz)
11	OSC2	-	MAIN SYSTEM CLOCK (10 MHz)
12	RESET(L)	IN	RESET TERMINAL (RESET ON:L)
13	(NMI)	-	NC
14	PS SECAM(H)	IN	NC
15	LOCK(L)	IN	(TUNING PLL LOCK DETECT:L)
16	SYNC DET	IN	DETECTION OF VIDEO SYNC SIGNAL (DETECTED:H)
17	POWER DOWN	IN	DETECTION SIGNAL FOR POWER DOWN
18	SQ REC(L)	-	NC
19	P.MUTE(L)	OUT	PICTURE MUTE CONTROL (MUTE:L)
20	R.PAUSE	IN	REMOTE PAUSE CONTROL
21	SECAM DET	IN	NC
22	NC	-	NC
23	A.WIDE	OUT	SPATIALIZER CTL
24	A.EFFECT	OUT	SPATIALIZER CTL
25	A.MUTE(H)	OUT	AUDIO MUTE CONTROL (MUTE ON:H)
26	TS BUSY	IN	BUSY SIGNAL ON THE BUS LINE FROM TIMER TO SUB
27	TS CS	OUT	CHIP SELECT SIGNAL ON THE BUS LINE FROM TIMER TO SUB
28	TM CLOCK	OUT	CLOCK SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
29	TM CS	OUT	CHIP SELECT SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
30	TM BUSY	IN	BUSY SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
31	TM DATA0	IN/OUT	DATA ON THE BUS LINE
32	TM DATA1	IN/OUT	DATA ON THE BUS LINE
33	TM DATA2	IN/OUT	DATA ON THE BUS LINE
34	TM DATA3	IN/OUT	DATA ON THE BUS LINE
35	TM DATA4	IN/OUT	DATA ON THE BUS LINE
36	TM DATA5	IN/OUT	DATA ON THE BUS LINE
37	TM DATA6	IN/OUT	DATA ON THE BUS LINE
38	TM DATA7	IN/OUT	DATA ON THE BUS LINE
39	H.REC(H)	OUT	HIFI AUDIO REC MODE CONTROL SIGNAL (REC:H)
40	N.REC(H)	OUT	NORMAL AUDIO REC MODE CONTROL SIGNAL(REC:H)

Table 1-7-1 SYSCON CPU pin function(1/2)

1.7.2 Syscon CPU pin function (IC3001) 2/2

PIN NO.	LABEL	IN/OUT	NOTE
41	MS_RESET	OUT	RESET SIGNAL FOR THE MECHANISM CONTROL IC(IC3301)
42	CNR_ON(H)	OUT	CNR ON SIGNAL(ON:H)
43	TU DATA	OUT	TUNING DATA
44	D.MUTE(H)	OUT	TUNER MUTE SIGNAL (MUTE:H)
45	SECAM TU ON(L)	OUT	TUNER "L" SYSTEM MODE:H
46	TU CE	OUT	CHIP ENABLE OF THE TUNER UNIT
47	TU CLOCK	OUT	CLOCK FOR DATA TRANSFER TO THE TUNER UNIT
48	DK(H)/FORCE(L)	-	NC
49	SECAM VL(H)	OUT	TUNER SYSTEM "L" MODE : L
50	RCIN	IN	DATA INPUT OF THE REMOTE CONTROL UNIT
51	NTSC(H)	-	NC
52	FULL_E_ON(H)	OUT	REC MODE:H
53	V.SYNC	IN	INPUT FOR THE VIDEO SYNC
54	P.SAVE(L)	OUT	POWER SAVE:L
55	CCIR(L)	OUT	EXCEPT FOR NTSC:L
56	OSD CS	OUT	CHIP SELECT FOR THE ON-SCREEN IC
57	S2-OUT	OUT	SERIAL DATA TRANSFER OUTPUT FROM THE FDP DRIVER TO THE ON-SCREEN IC
58	S2-IN	IN	SERIAL DATA TRANSFER OUTPUT FROM THE ON-SCREEN IC TO FDP DRIVER
59	S2-CLK	OUT	SERIAL DATA TRANSMISSION CLOCK FROM THE FDP DRIVER TO THE ON-SCREEN IC
60	INSERT(L)	OUT	SIMPLE INSERT MODE:L
61	STB	OUT	PERMISSION SIGNAL FOR CLOCK OUTPUT (STROBE SIGNAL)
62	SPH/PSL	-	NC
63	VCC	-	SYSTEM POWER
64	SEC TR(H)	OUT	SECAM SPECIAL PLAYBACK:H
65	TITLE REC	-	NC
66	NC	-	NC
67	CTL_CLOCK	IN	LINEAR TIME COUNTER INPUT
68	SECAM(H)	OUT	COLOR SYSTEM SECAM:H
69	I2C DATA	IN/OUT	SERIAL DATA TRANSFER OUTPUT FOR EE PROM
70	I2C CLOCK	IN/OUT	SERIAL DATA TRANSMISSION CLOCK FOR EE PROM
71	D.FF	IN	ROTATION DETECTION SIGNAL FOR DRUM MOTOR/TIMING CONTROL SIGNAL FOR REC
72	AVCC	-	SYSTEM POWER FOR ANALOG CIRCUIT
73	SHTLB	IN	INPUT FOR THE JOG SHUTTLE
74	SHTL(L)/SHTLA	IN	INPUT FOR THE JOG SHUTTLE
75	JSA	IN	INPUT FOR THE JOG SHUTTLE
76	JSB	IN	INPUT FOR THE JOG SHUTTLE
77	RF AGC	-	NC
78	REC LEVEL V	OUT	OUTPUT FOR REC LEVEL CTL
79	AFT/S.CURVE	IN	TUNING CHECK
80	SCRAMBLE(H)	IN	INPUT FOR 8-PIN OF AV2

Table 1-7-2 SYSCON CPU pin function(2/2)

1.3 Syscon CPU pin function (IC3301) 1/2

IN NO.	LABEL	IN/OUT	NOTE
1	A.ENV/ND(L)	IN	INPUT THE AVERAGE OF FMA PLAYBACK SIGNAL-A (AUTO TRACKING AND FMA NON-RECORD DETECTION)
2	VIDEO ENV	IN	AUTO TRACKING DETECT/INPUT THE AVERAGE OF PLAYBACK VIDEO SIGNAL
3	6.5H DET	IN	6.5H DETECTION SIGNAL FOR SERVO CIRCUIT
4	RECSF	IN	DETECTION SIGNAL FOR REC SAFETY/CASSETTE INSERT SWITCH
5	AVSS	-	GND FOR ANALOG CIRCUIT
6	TEST	-	GND POWER SUPPLY
7	X2	-	NC
8	X1	-	TIMER CLOCK (32.768 KHz)
9	VSS	-	GND
10	OSC1	-	MAIN SYSTEM CLOCK (10 MHz)
11	OSC2	-	MAIN SYSTEM CLOCK (10 MHz)
12	MS_RESET(L)	IN	RESET TERMINAL (RESET ON:L)
13	(NMI)	IN	NC
14	LSC	IN	MECHANISM MODE DETECT SWITCH (C)
15	LSB	IN	MECHANISM MODE DETECT SWITCH (B)
16	LSA	IN	MECHANISM MODE DETECT SWITCH (A)
17	RAE OUT	OUT	RAE TERMINAL FOR PAUSE OUT
18	C/M E06	OUT	SPEED CONTROL FOR CAP MOTOR
19	S.SENS	IN	LEADER TAPE DETECT (DET ON: L)
20	E.SENS	IN	TRAILER TAPE DETECT (DET ON: L)
21	I2C CLOCK	OUT	SERIAL DATA TRANSFER CLOCK FOR MEMORY IC
22	TU FG/TAPE REMAIN	IN	DETECTION SIGNAL FOR TAKE-UP REEL ROTATION/TAPE REMAIN
23	SUP.FG	IN	DETECTION SIGNAL FOR SUPPLY REEL ROTATION/TAPE REMAIN
24	CTL CLOCK	IN	CONTROL PULSE INPUT
25	I2C DATA	IN/OUT	I/O DATA FOR MEMORY IC
26	LCM1	OUT	LOADING MOTOR DRIVE CONTROL
27	LCM2	OUT	LOADING MOTOR DRIVE CONTROL
28	LCM3	OUT	LOADING MOTOR DRIVE CONTROL
29	TM CS	IN	CHIP SELECT SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
30	TM CLOCK	IN	CLOCK SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
31	SLOW P/PAL_EP_CTL	-	NC
32	LP SHORT(H)	-	NC
33	SP SHORT(H)	-	NC
34	TM DATA7	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
35	TM DATA6	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
36	TM DATA5	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
37	TM DATA4	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
38	TM DATA3	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
39	TM DATA2	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
40	TM DATA1	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL

Table 1-7-3 SYSCON CPU pin function(1/2)

1.7.4 Syscon CPU pin function (IC3301) 2/2

NOTE	PIN NO.	LABEL	IN/OUT	NOTE
DATA ON THE BUS LINE FROM TIMER TO M-CTL	41	TM DATA0	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
BUSY SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL	42	TM BUSY	OUT	BUSY SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
NORMAL AUDIO RECORDING START	43	N REC START(H)	OUT	NORMAL AUDIO RECORDING START
HIFI AUDIO RECORDING START	44	H REC START(L)	OUT	HIFI AUDIO RECORDING START
"V.PULSE CONTROL, V COMPENSATION DURING SPECIAL PLAYBACK"	45	VPCTL	OUT	"V.PULSE CONTROL, V COMPENSATION DURING SPECIAL PLAYBACK"
CONTROL SIGNAL FOR SW POWER SUPPLY	46	P.CTL(H)	OUT	CONTROL SIGNAL FOR SW POWER SUPPLY
EE/PB CONTROL (EE MODE:L)	47	EE(L)	OUT	EE/PB CONTROL (EE MODE:L)
FLYING ERASE CONTROL	48	FLY E ON(H)	OUT	FLYING ERASE CONTROL
SERIAL DATA TRANSFER CLOCK OUTPUT FOR VSC IC	49	VSC CLOCK	OUT	SERIAL DATA TRANSFER CLOCK OUTPUT FOR VSC IC
SERIAL DATA OUTPUT FOR VSC IC	50	VSC DATA	OUT	SERIAL DATA OUTPUT FOR VSC IC
D.F.F TIMING CONTROL SIGNAL FOR SPECIAL PLAYBACK	51	R-Y REV	OUT	D.F.F TIMING CONTROL SIGNAL FOR SPECIAL PLAYBACK
DETECTION SIGNAL FOR CONTROL PULSE MODE/TAPE RUNNING/BLANK	52	CTL C/D	IN	DETECTION SIGNAL FOR CONTROL PULSE MODE/TAPE RUNNING/BLANK
DYNAMIC DRUM FG INPUT	53	DDFG	IN	DYNAMIC DRUM FG INPUT
DYNAMIC DRUM SPEED CONTROL	54	DDSPDCTL	OUT	DYNAMIC DRUM SPEED CONTROL
DYNAMIC DRUM CONTROL (REVERS)	55	DDCREV	OUT	DYNAMIC DRUM CONTROL (REVERS)
DYNAMIC DRUM CONTROL (FORWARD)	56	DDCFWD	OUT	DYNAMIC DRUM CONTROL (FORWARD)
TRI-R DATA	57	VIDEO DATA	OUT	TRI-R DATA
SP MODE:L	58	SP(L)	OUT	SP MODE:L
TRI-R CLK	59	VIDEO CLK	OUT	TRI-R CLK
VIDEO SYSTEM CTL IN THE BEST MODE/IP CTL/AV2 Y/C IN:H	60	E.P.CTL/IP ON(H)	OUT	VIDEO SYSTEM CTL IN THE BEST MODE/IP CTL/AV2 Y/C IN:H
HIGH SPEED FF/REW TURBO SEARCH:H	61	V.UPI(H)	OUT	HIGH SPEED FF/REW TURBO SEARCH:H
SPECIAL PLAYBACK:H	62	TRICK	OUT	SPECIAL PLAYBACK:H
SYSTEM POWER	63	VCC	-	SYSTEM POWER
PRO SLOW REV(H)	64	SLOW_REV	OUT	PRO SLOW REV(H)
PRO SLOW CTL	65	1/2 EP/3.58NTSC	OUT	PRO SLOW CTL
SERVO SERIAL DATA OUTPUT	66	S_DATA	OUT	SERVO SERIAL DATA OUTPUT
CAPSTAN MOTOR REVERSE CONTROL (FWD:H/REV:L)	67	CAP REV(L)	OUT	CAPSTAN MOTOR REVERSE CONTROL (FWD:H/REV:L)
DETECTION SIGNAL FOR INDEX DATA	68	DUTY I/O	IN/OUT	DETECTION SIGNAL FOR INDEX DATA
DETECTION SIGNAL FOR MODE/TAPE RUNNING/BLANK	69	CAP FG	IN	DETECTION SIGNAL FOR MODE/TAPE RUNNING/BLANK
STOP CONTROL SIGNAL FOR CAPSTAN MOTOR	70	PAUSE(L)	OUT	STOP CONTROL SIGNAL FOR CAPSTAN MOTOR
ROTATION DETECTION SIGNAL FOR DRUM MOTOR/TIMING CONTROL SIGNAL FOR REC	71	D.F.F	IN	ROTATION DETECTION SIGNAL FOR DRUM MOTOR/TIMING CONTROL SIGNAL FOR REC
SYSTEM POWER FOR ANALOG CIRCUIT	72	AVCC	-	SYSTEM POWER FOR ANALOG CIRCUIT
NC	73	SCASS	-	NC
VOLTAGE CONTROL SIGNAL FOR VIDEO FREQUENCY RESPONSE	74	SB-G	OUT	VOLTAGE CONTROL SIGNAL FOR VIDEO FREQUENCY RESPONSE
VOLTAGE CONTROL SIGNAL FOR DRUM MOTOR DRIVE	75	DRUM V	OUT	VOLTAGE CONTROL SIGNAL FOR DRUM MOTOR DRIVE
VOLTAGE CONTROL SIGNAL FOR CAPSTAN MOTOR SPEED	76	CAP V	OUT	VOLTAGE CONTROL SIGNAL FOR CAPSTAN MOTOR SPEED
DYNAMIC DRUM POSITION DETECT	77	DD ABS	IN	DYNAMIC DRUM POSITION DETECT
S-VHS MODE:H	78	S(H)	OUT	S-VHS MODE:H
HEAD SELECT (LP HEAD:H/SP HEAD:L)	79	HEAD.SEL	OUT	HEAD SELECT (LP HEAD:H/SP HEAD:L)
DETECTION SIGNAL FOR SW POWER SUPPLY	80	PROTECT	IN	DETECTION SIGNAL FOR SW POWER SUPPLY

Table 1-7-4 SYSCON CPU pin function(2/2)

SECTION 2 MECHANISM ADJUSTMENT

BEFORE STARTING REPAIR AND ADJUSTMENT

1 Precautions

Unplug the power cable of the main unit before using your soldering iron.

Take care not to cause any damage to the conductor wires when plugging and unplugging the connectors.

Do not randomly handle the parts without identifying where the trouble is.

Exercise enough care not to hurt yourself, especially your finger nails, during the repair work.

When installing the front panel assembly, be sure to hook the lug on the back side of cassette door to the door opener of the cassette holder. If this operation is neglected it will not be possible to remove the cassette when ejecting because the housing door cannot be opened.

2 Checking for Proper Mechanical Operations

Enter the mechanism service mode when you want to operate the mechanism when no cassette is loaded. (See 1.5 MECHANISM SERVICE MODE)

3 Manually Removing the Cassette Tape

In case of electrical failures

If you cannot remove the cassette tape which is loaded because of any electrical failure, manually remove it by taking the following steps.

Unplug the power cable and remove the top cover, bracket and front panel assembly. (See 1.3 DISASSEMBLY/ASSEMBLY METHOD)

Unload the cassette by manually turning the unloading motor of the main deck assembly toward the front. In doing so, hold the tape by the hand to keep the slack away from any grease. (See Fig.2-1-1)

Bring the pole base assembly (on the supply or take-up side) to a pause when it reaches the position where it is hidden behind the cassette tape.

Move the top plate toward the drum while holding down the lug (A) of the bracket retaining the top plate. Likewise hold part (B) down and remove the top plate.

The spring plate (C) is then brought under the cassette lid. Then remove the top plate by pressing the whole cassette tape down. (Note 1) (See Fig.2-1-2).

Remove the cassette tape by holding both the slackened tape and the cassette lid.

Take up the slack of the tape into the cassette. This completes removal of the cassette tape.

Note: The spring plate of the top plate is sharp-edged. Take care not to hurt yourself.

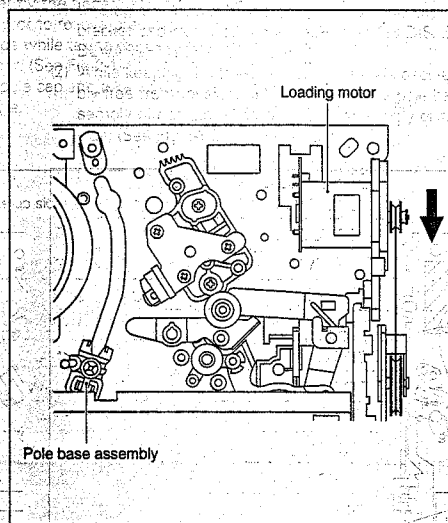


Fig. 2-1-1

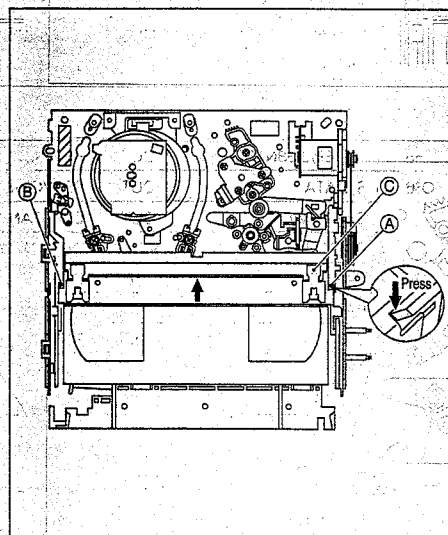


Fig. 2-1-2

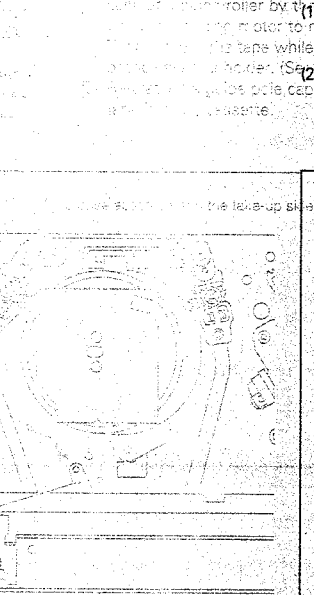


Fig. 2-1-3

- (1) Unplug the power cable and remove the top cover, bracket and front panel assembly (See 1.3 DISASSEMBLY/ASSEMBLY METHOD).
- (2) While keeping the tension arm of the main deck assembly free from tension, pull the tape on the pole base assembly out of the guide roller (on the supply or take-up side) (See Fig.2-1-3).

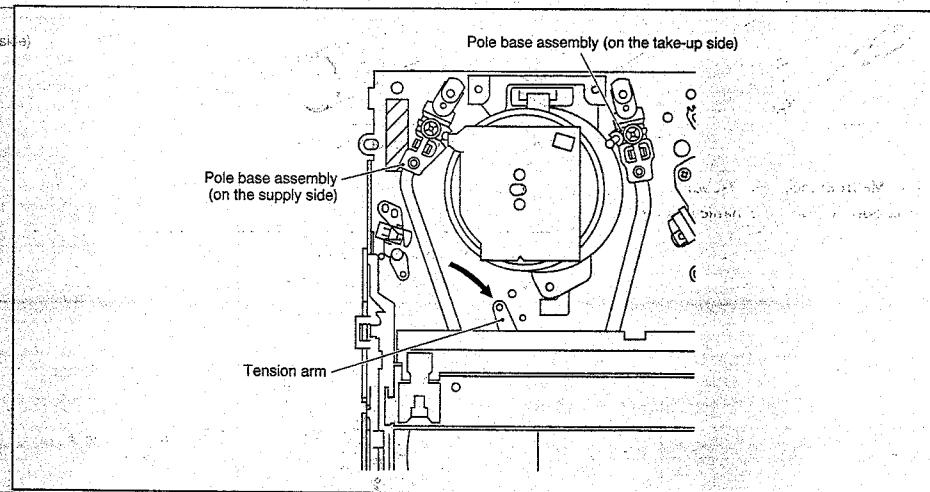


Fig. 2-1-3

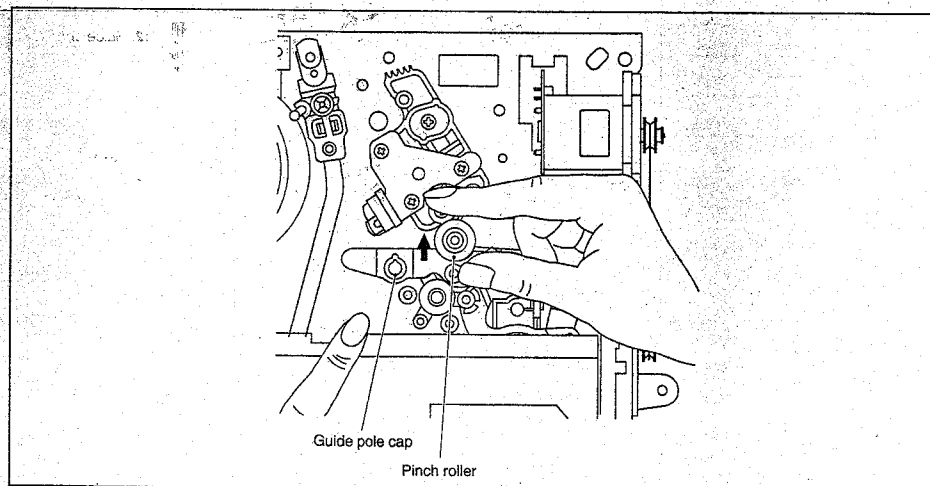


Fig. 2-1-4

- (3) Remove the top plate as done in Step (4) of "1" in case of electrical failures" and remove the guide pole cap at the same time. (See Fig.2-1-4).
- (4) While lifting the cassette tape lid, hold the cassette tape case and pinch roller by the fingers and move them toward the loading motor to relieve pressure on the tape. Then remove the tape while taking the cassette case out of the cassette holder. (See Fig.2-1-4).
- (5) Re-place the guide pole cap and take up the slack of the tape into the cassette.

2.1.4 Jigs and Tools Required for Adjustment

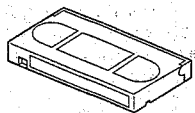
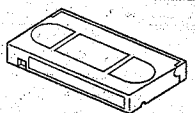
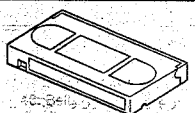
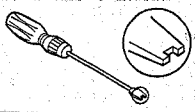
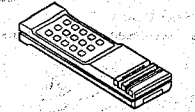
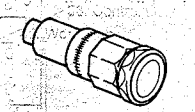
Alignment tape (SP) MHPE	Alignment tape (LP) MHPE-L	Back tension cassette gauge PUJ48076-2	A/C head position bit PTU94010
			
Roller driver PTU94002	Presetting unit PTU94008	Torque gauge PUJ48075-2	
			

Table 2-1-1 Jigs and tools required for adjustment

2.1.5 Maintenance and Inspection

1. Location of major mechanical parts

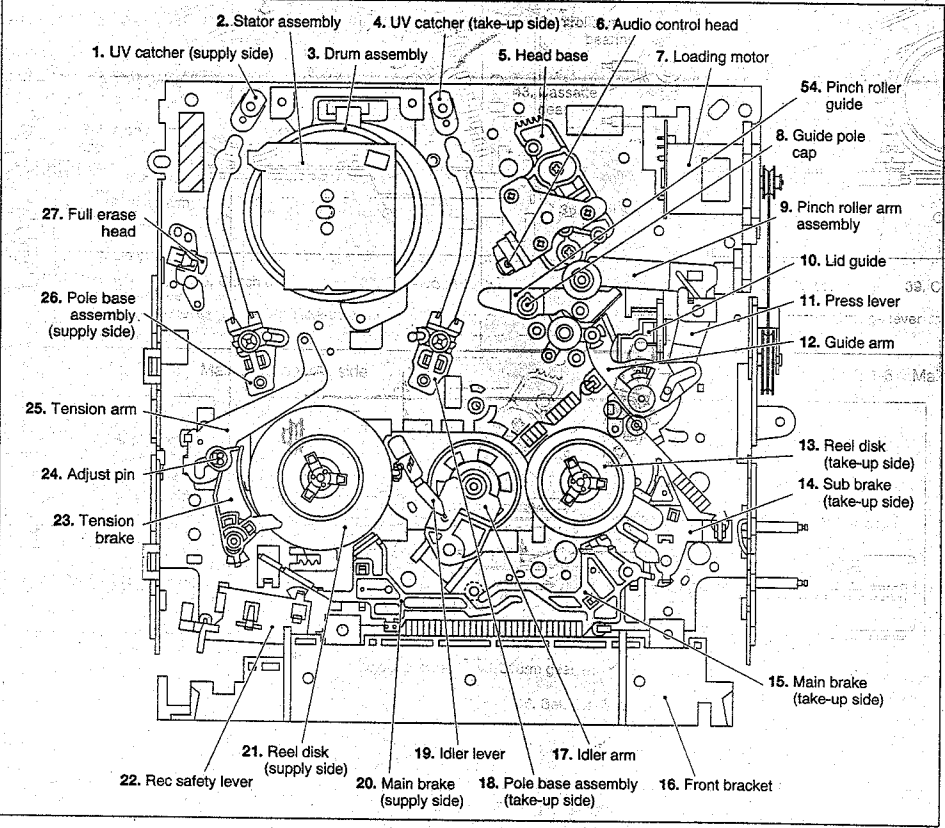


Fig. 2-1-5 Main deck top side

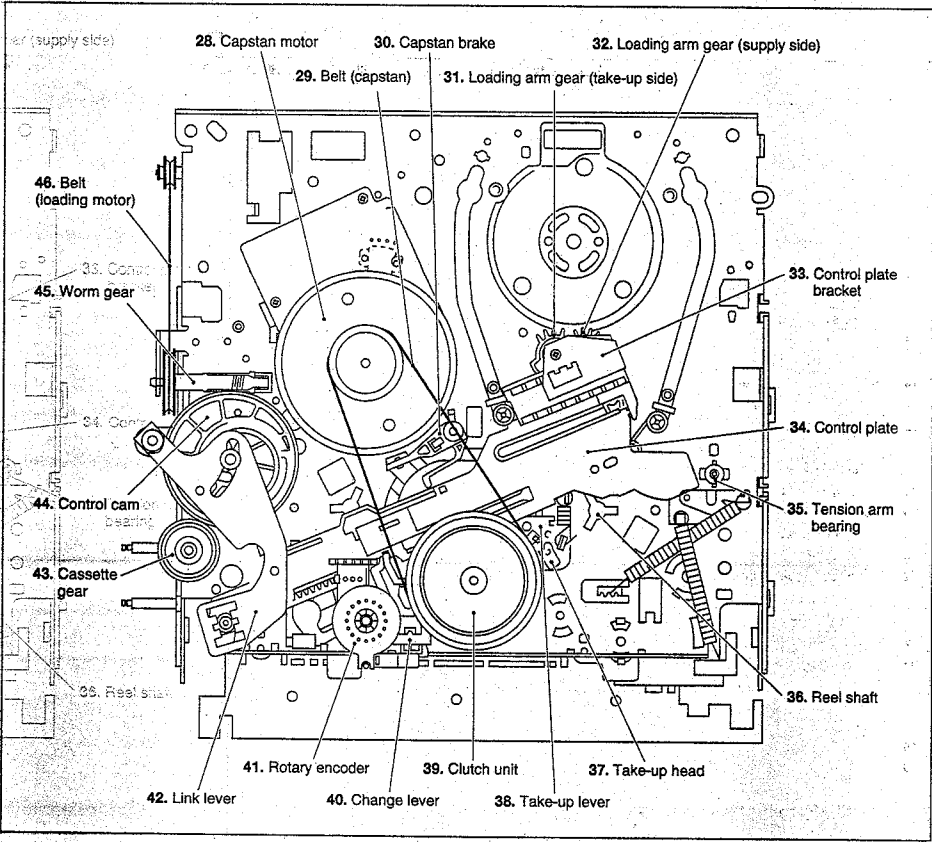


Fig. 2-1-6 Main deck bottom side

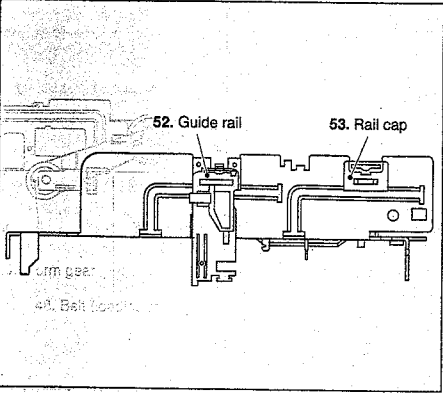


Fig. 2-1-7 Main deck left side

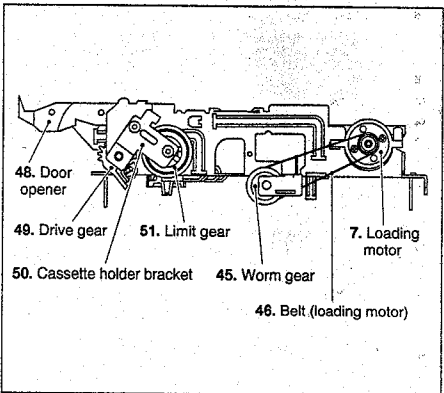


Fig. 2-1-8 Main deck right side

Note: Numerals at the start of the parts names are identical with those of the location diagrams of the major mechanical parts, 1 - 18 of which denote the order of removal. Of the alphabets T and B next to the parts names, T denotes removal from the main deck top side, B from the bottom side and T/B from both sides.

	Removable parts names	Replacement parts names	1 4 12 53 46 9 52 11 50 - - - 49 32 - - - 38 25 23 31 16 21 42 41 29 39 40 33 34 14 19 54																																																
			UV catcher	Guide arm assembly	Rail cap	Belt (loading motor)	Pinch roller arm assembly	Guide rail	Press lever assembly	Cassette holder bracket	Opener guide	Relay gear	Cassette holder assembly	Drive gear	Loading arm gear (supply side)	Drive arm assembly	Tension spring	Take-up lever	Tension arm assembly	Tension brake assembly	Loading arm gear (take-up side)	Front bracket	Reel base (supply side)	Link lever	Rotary encoder	Belt (capstan motor)	Clutch unit	Change lever	Control plate bracket	Control plate	Sub brake	Idler lever	Pinch roller guide																		
17	Idler arm	T			1		2		3	4	5	6	7	8																																					
15	Main brake (take-up side)	T/B			1		2		3	4	5	6	7	8								9	10	11	12	13	14	15	16	17																					
13	Reel disk (take-up side)	T			1		2		3	4	5	6	7	8								9	10	11	12	13	14	15	16	17																					
19	Idler lever	T/B			1		2		3	4	5	6	7	8								9	10	11	12	13	14	15	16	17																					
-	Rotary encoder guide	T/B			1		2		3	4	5	6	7	8								9	10	11	12	13	14	15	16	17																					
14	Sub brake (take-up side)	T/B			1		2		3	4	5	6	7	8								9	10	11	12	13	14	15	16																						
-	Loading arm gear shaft	B												8								9																													
35	Tension arm bearing	T			1		2		3	4	5	6	7	8								9	7																												
-	Control plate guide	T/B																																																	
37	Take-up head	B																				8																													
31	Loading arm gear (take-up side)	B													8																																				
25	Tension arm assembly	T/B			1		2		3	4	5	6	7	8																																					
20	Main brake (supply side)	T/B			1		2		3	4	5	6	7	8																																					
38	Take-up lever	T/B																																																	
32	Loading arm gear (supply side)	B																																																	
21	Reel disk (supply side)	T			1		2		3	4	5	6	7	8																																					
-	Drive arm assembly	T			1		2		3	4	5	6	7	8																																					
30	Capstan brake	T/B																																																	
34	Control plate	B																																																	
23	Tension brake assembly	T/B			1		2		3	4	5	6	7	8																																					
-	Cassette holder assembly	T			1		2		3	4	5	6	7	8																																					
-	Direct gear	B																																																	
10	Lid guide	T			1		2		3	4	5	6	7	8																																					
40	Change lever	B																																																	
49	Drive gear	T																																																	
11	Press lever assembly	T			1		2		3	4	5	6	7	8																																					
-	Relay gear	T																																																	
51	Limit gear assembly	T																																																	
26	Pole base assembly (supply side)	T/B			1		2		3	4	5	6	7	8																																					
18	Pole base assembly (take-up side)	T/B			1		2		3	4	5	6	7	8																																					
-	Tension spring (Main brake)	T																																																	
22	Rec safety lever	T/B																																																	
28	Capstan motor	T/B																																																	
45	Worm gear	B				1																																													
44	Control cam	B																																																	
43	Cassette gear	B																																																	
39	Clutch unit	B																																																	
9	Pinch roller arm assembly	T			1		2		3	4	5	6	7	8																																					
-	Opener guide	T																																																	
8	Guide pole cap	T																																																	
54	Pinch roller guide	T																																																	
14	UV catcher	T																																																	
42	Link lever	B																																																	
41	Rotary encoder	B																																																	
12	Guide arm assembly	T																																																	

2. Cleaning Regular cleaning of the transport system parts is desirable but practically impossible. So make it a rule to carry out cleaning of the tape transport system whenever the machine is serviced. However, the video head, the video tape, the video tape guide and/or brush get soiled, the playback picture may appear inferior or at worst disappear, resulting in possible tape damage.

(1) When cleaning the upper drum (especially the video head), soak a piece of closely woven cloth or Kimu-wipe with alcohol and while holding the cloth onto the upper drum by the fingers, turn the upper drum counterclockwise.

Note: Absolutely avoid sweeping the upper drum vertically as this will cause damage to the video head.

(2) To clean the parts of the tape transport system other than the upper drum, use a piece of closely woven cloth or a cotton swab soaked with alcohol.

(3) After cleaning, make sure that the cleaned parts are completely dry before using the video tape.

3. Lubrication

With no need for periodical lubrication, you have only to lubricate new parts after replacement. If any oil or grease on contact parts is soiled, wipe it off and newly lubricate the parts.

(1) See the mechanism assembly and disassembly diagrams (M4) for the lubricating or greasing spots. See Table 2-1-2 for the types of oil or grease to be used.

Type	Name	Serial No.	Symbols on the dis-assembly diagrams
Grease	Maltimp SH-P	KYODO-SH-P	AA
Oil	Cosmohydro HV56	COSMO-HV56	BB

Table 2-1-2 Grease and oil used for the unit

4. Suggested servicing schedule for main components The following table indicates the suggested period for such service measures as cleaning, lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions. However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary. Also note that rubber parts may deform in time, even if the set is not used.

System	Parts Name	Operation Hours	
		~1000H	~2000H
Tape transport	Upper drum assembly	★○	○
	A/C head	★○	★○
	Lower drum assembly	★	★○
	Pinch roller arm assembly	★	★
	Full erase head	★	★
	Tension arm assembly	★	★
	Capstan motor (Shaft)	★	★
Drive	Guide arm assembly	★	★
	Capstan motor		○
	Capstan brake		○
	Main brake		○
	Belt (Capstan)	○	○
	Belt (Loading motor)		○
	Loading motor		○
	Clutch unit		○
	Worm gear assembly		○
	Control plate		○
Other	Brush assembly	★○	★○
	Tension brake	○	○
	Rotary encoder		○

2.2. REPLACEMENT OF MAJOR PARTS

2.2.1 Before Starting Disassembling

This unit is provided with a mechanism assembly mode. It is therefore necessary to enter this mode for assembling and disassembling procedures. This mode is usually not in use, manually set it when it is required.

2.2.2. How to Set the Mechanism Assembling Mode

Remove the main deck assembly and place it bottom side up. (See SECTION 1 DISASSEMBLY). Turn the worm gear toward the front so that the register hole of the control cam is brought into alignment with the hole at the main deck assembly chassis. This position renders the mechanism assembling mode operational. Make sure that the control plate is located in alignment with the mark E. (See Fig.2-2-1)

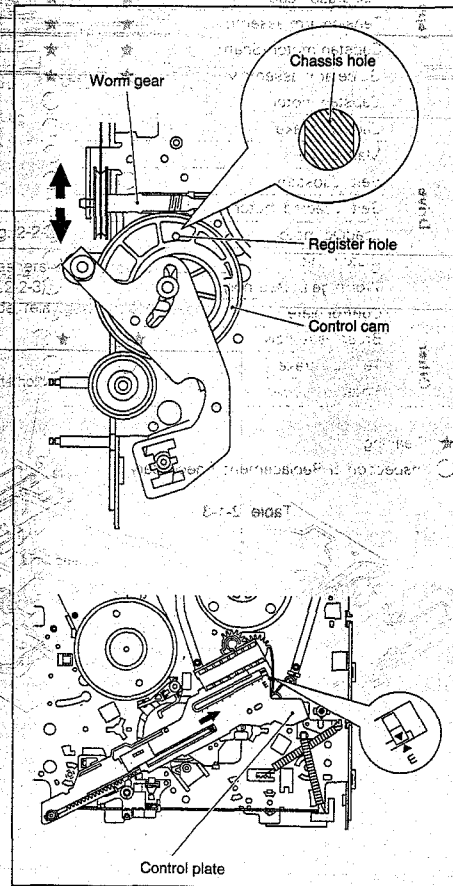


Fig. 2-2-1

2.2.3 Cassette Holder Assembly

1. How to remove

- (1) Remove the guide rail and rail cap. (See Fig.2-2-2).
- (2) Lugs on the guide rail and one lug on the rail cap

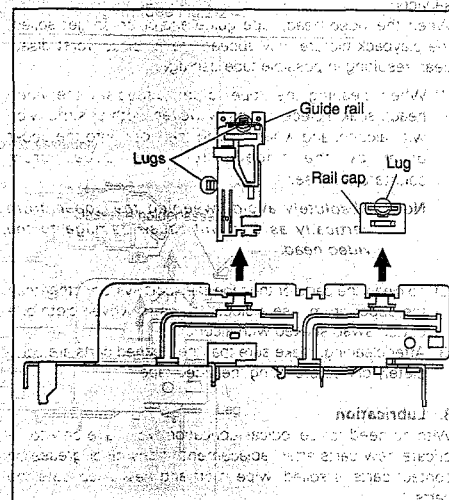


Fig. 2-2-2

- (2) Remove the two slit washers and remove the cassette holder bracket. (See Fig.2-2-3)

- (3) Remove the opener guide, relay gear and limit gear. (See Fig.2-2-3)

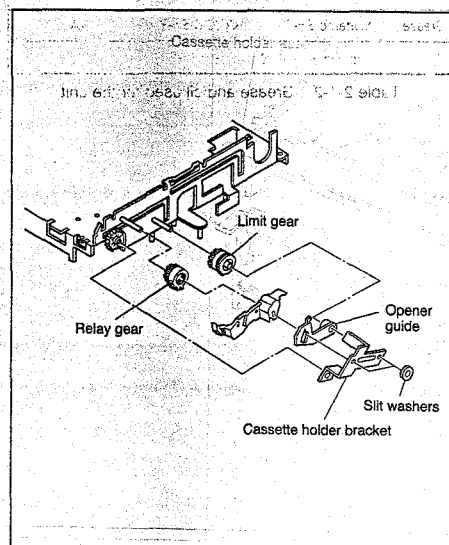


Fig. 2-2-3

- (4) While swinging the lock levers (R) and (L) of the cassette holder assembly toward the front, slide the cassette holder assembly until its legs come to where the guide rail and the rail cap have been removed (so that the drive arm is upright). (See Fig.2-2-4)

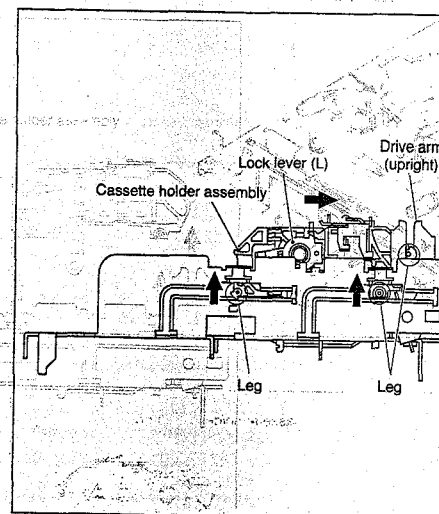


Fig. 2-2-4

- (5) While holding the left side of the cassette holder, lift the cassette holder assembly so that the three legs on the left side are all released. Then pull the legs A and B on the right side out of the rail and also pull up the leg C. (See Fig.2-2-5; Fig.2-2-6)

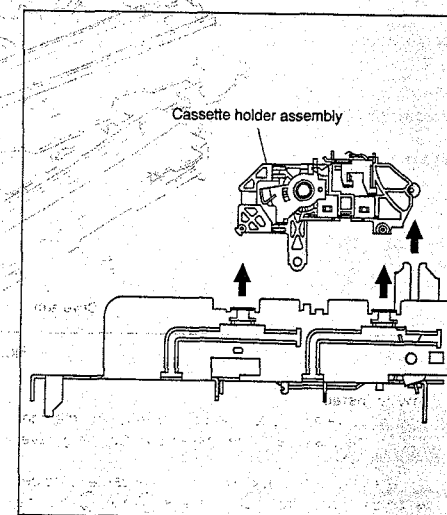


Fig. 2-2-5

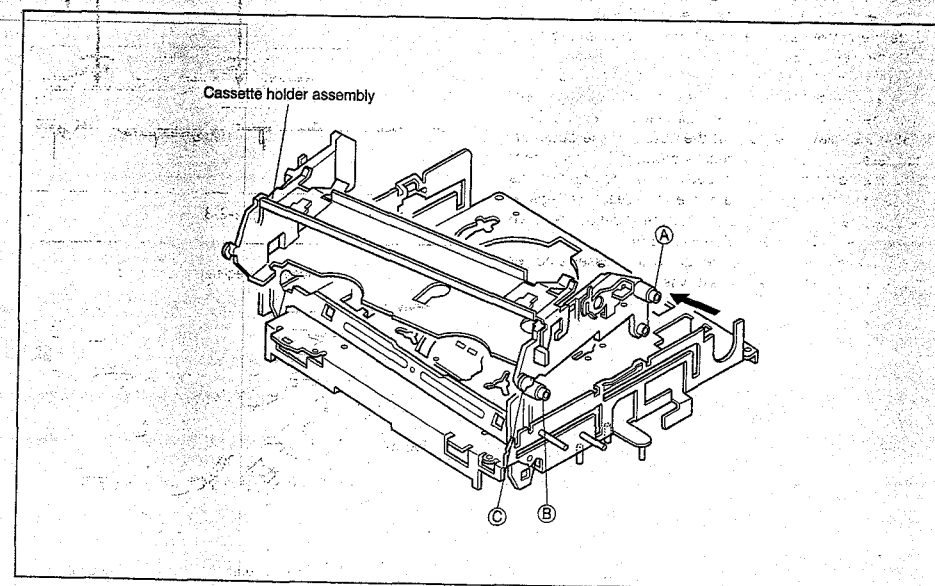


Fig. 2-2-6

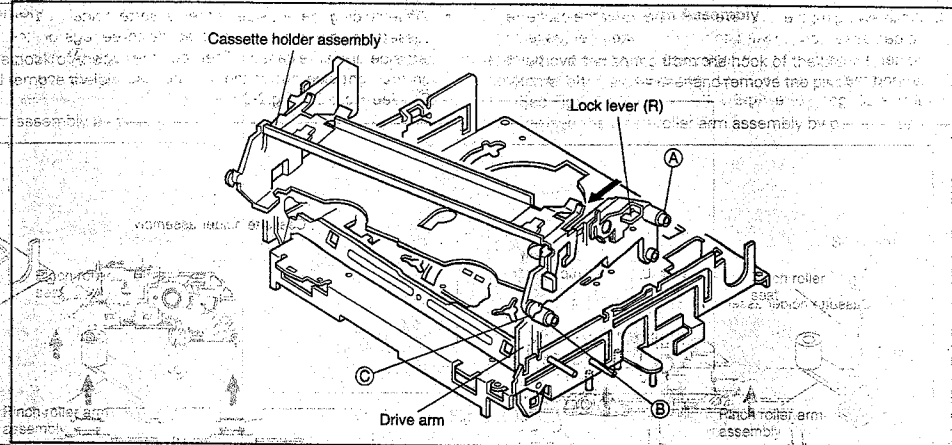


Fig. 2-2-7

2. How to install

- (1) Hold the drive arm upright and fit the leg (C) on the right side of the cassette holder assembly into the groove. (See Fig. 2-2-7)
- (2) While swinging the lock lever (R) of the cassette holder assembly toward front, put the legs (A) and (B) into the rail. (See Fig. 2-2-7)
- (3) Drop the three legs on the left side of the cassette holder into the groove at one time. (See Fig. 2-2-8)
- (4) Slide the whole cassette holder toward the front to bring it to the eject end position.
- (5) Install the limit gear so that the notch on the outer circumference of the limit gear is brought into alignment with the register hole on the main deck. (See Fig. 2-2-9)
- (6) Install the relay gear so that the notch on the outer circumference of the relay gear is brought into alignment with the notch on the main deck. It is important at this stage that the register hole at the limit gear, the register hole at the relay gear and the register hole at the drive gear are all in alignment. (See Fig. 2-2-9).
- (7) Install the door stopper, opener guide and cassette holder Reg. bracket and fasten the two slit washers.

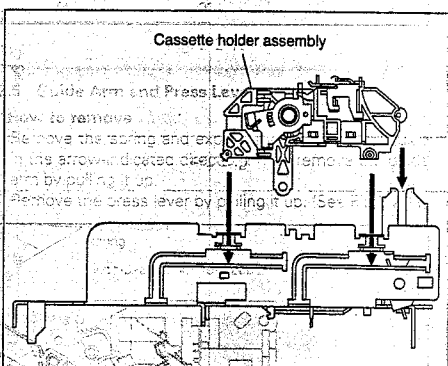


Fig. 2-2-8

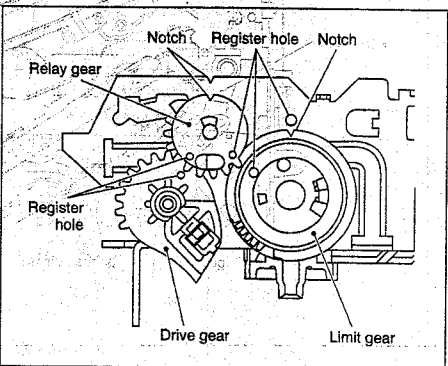


Fig. 2-2-9

2.2.4 Pinch Roller Arm Assembly

1. How to remove

- (1) Remove the spring from the hook of the press lever.
- (2) Remove the slit washer and remove the pinch roller seat. (See Fig. 2-2-10)
- (3) Remove the pinch roller arm assembly by pulling it up.

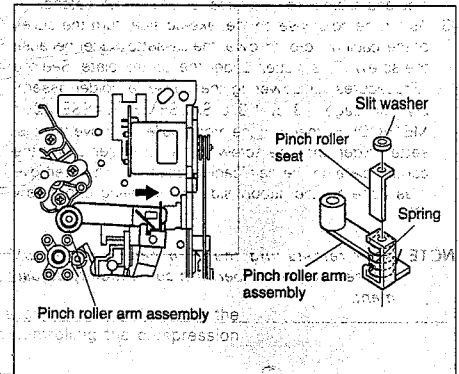


Fig. 2-2-10

2.2.5 Guide Arm and Press Lever

1. How to remove

- (1) Remove the spring and expand the lug of the lid guide in the arrow-indicated direction. Then remove the guide arm by pulling it up.
- (2) Remove the press lever by pulling it up. (See Fig. 2-2-11)

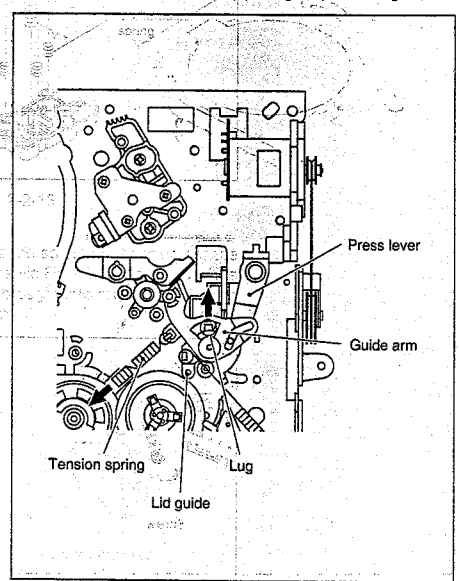


Fig. 2-2-11

2.2.6 Audio Control Head

1. How to remove

- (1) Remove two screws (A) and remove the audio control head from head together with the head base.

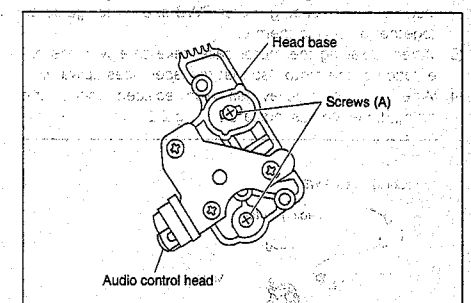


Fig. 2-2-12

- (2) When replacing only the audio control head, remove the three screws (B) while controlling the compression spring.

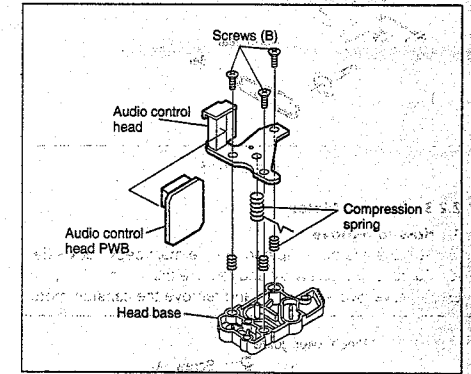


Fig. 2-2-13

2. How to install

- (1) To make the post-installation adjustment easier, set the temporary level as indicated in Fig. 2-2-14. Also make sure that the screw center is brought into alignment with the center position of the slot.

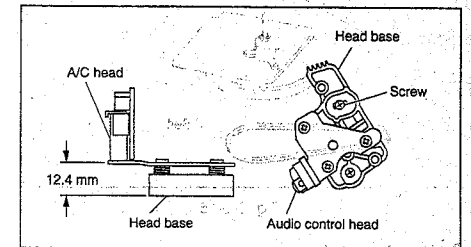


Fig. 2-2-14

2.2.7 Loading Motor

1. How to remove

- (1) Remove the belt wound around the worm gear.
- (2) Open the two lugs of the motor guide and remove the loading motor, loading motor PWB and motor guide altogether by pulling them up.
- (3) When replacing the motor base, take care with the orientation of the motor (so that the label faces upward).
- (4) When the motor pulley has been replaced, choose the fitting dimension as indicated in Fig. 2-2-15.

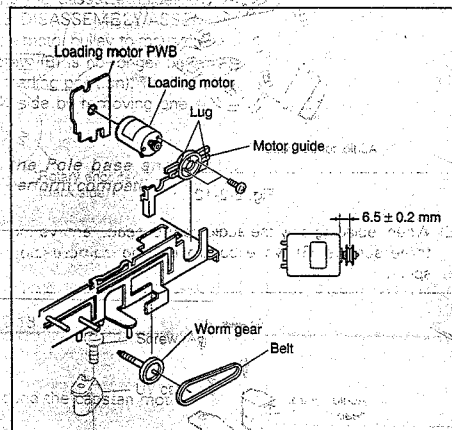


Fig. 2-2-15

2.2.8 Capstan Motor

1. How to remove

- (1) Remove the belt (capstan) on the main deck back side.
- (2) Remove one screw (A) and remove the pinch roller guide.
- (3) Remove two screws (B) and remove the capstan motor.

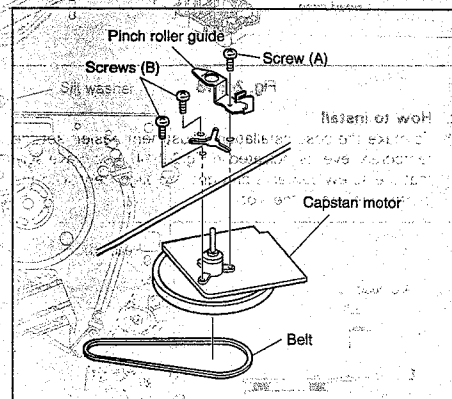


Fig. 2-2-16

2. How to install

Please refer to page 2-25.

2.2.9 Pole Base (on the supply or take-up side)

1. How to remove

- (1) Remove the UV catcher on the removal side by loosening one screw (A).
- (2) Remove the pole base on the supply side from the main deck by loosening one screw (B) on the main deck back side and sliding the pole base toward the UV catcher.
- (3) As for the pole base on the take-up side, turn the pulley of the loading motor to lower the cassette holder because the screw (B) is hidden under the control plate (See the "Procedures for Lowering the Cassette holder assembly" on page 1-3 of 1.3 DISASSEMBLY/ASSEMBLY METHOD). Further turn the motor pulley to move the cassette holder until the screw (B) is no longer under the control plate (in the half-loading position). Then remove it as done for the supply side by removing one screw (B).

NOTE: After reinstalling the Pole base and the UV catcher, be sure to perform compatibility adjustment.

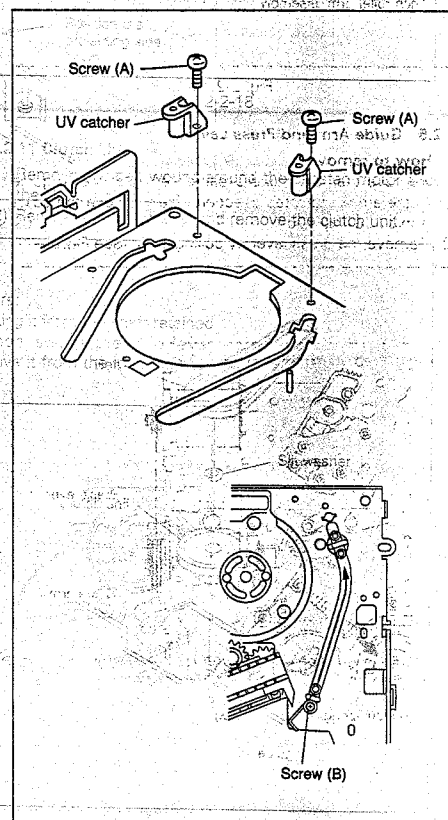


Fig. 2-2-17

2.2.10 Rotary Encoder

- (1) Remove one screw (A) and remove the rotary encoder by pulling it up.
- (2) When installing the rotary encoder, bring the register marks into alignment as indicated in Fig. 2-2-18.

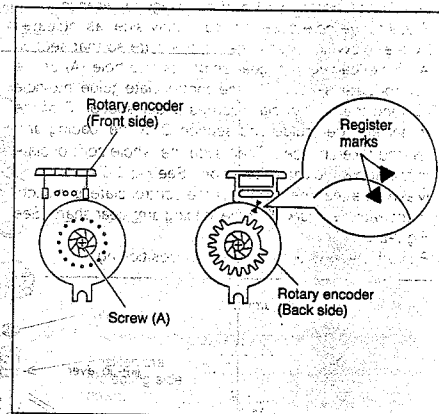


Fig. 2-2-18

2.2.11 Clutch Unit

- (1) Remove the belt wound around the capstan motor and the clutch unit.
- (2) Remove the slit washer and remove the clutch unit.

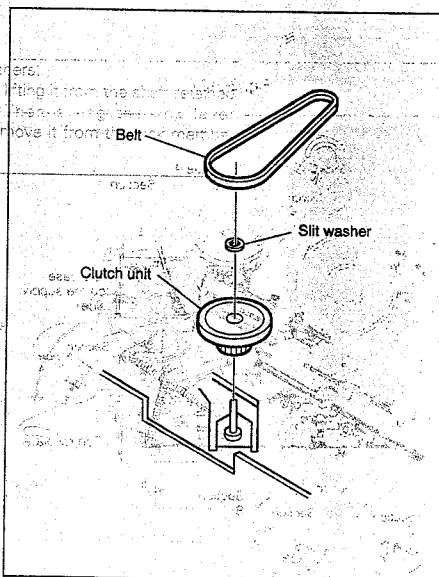


Fig. 2-2-19

2.2.12 Change Lever and Direct Gear

- (1) Release two lugs of the rotary encoder guide in the arrow-indicated direction and remove the change lever.
 - (2) Remove the slit washer retaining the direct gear and remove the latter.
- Take care of the two washers and one spring on and under the direct gear. (See Fig. 2-2-20)

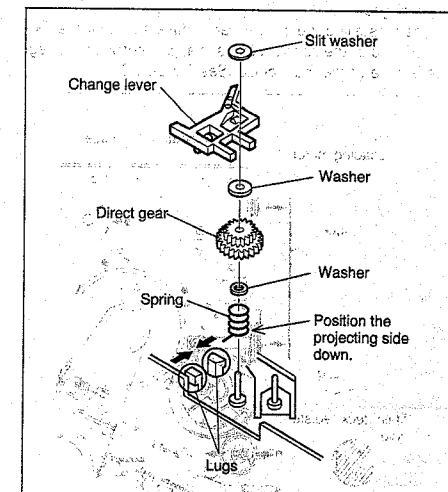


Fig. 2-2-20

2.2.13 Link Lever

- (1) Remove the two slit washers.
- (2) Remove the link lever by lifting it from the shaft retained by the slit washers. Then swing the link lever counterclockwise and remove it from the lock member of the control plate.

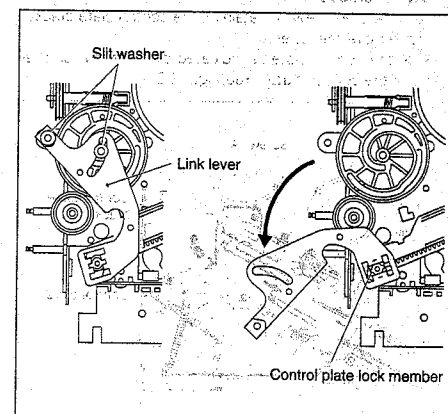


Fig. 2-2-21

2.2.14 Cassette Gear, Control Cam and Worm Gear

- (1) Remove the control cam by lifting it.
- (2) Open the two lugs of the cassette gear outward and pull the latter off.
- (3) Remove the belt wound around the worm gear and the loading motor.
- (4) Open the lug of the lid guide outward and remove the worm gear.
- (5) When installing the control cam, make sure that the register hole at the control cam is in alignment with the register hole of the main deck.

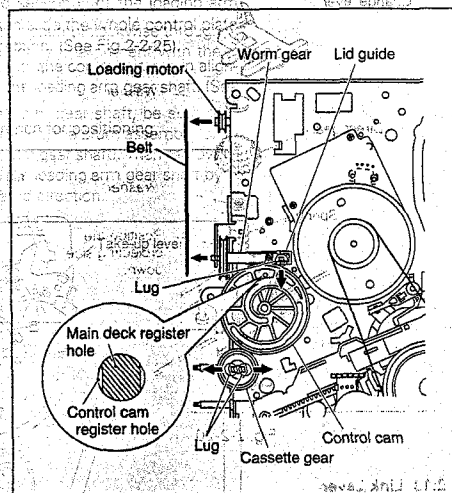


Fig. 2-2-22

2.2.15 Control Plate

1. How to remove

- (1) Remove one screw (A) retaining the control plate bracket and remove the latter.
- (2) Slide the control plate as indicated by the arrow and remove the control plate.

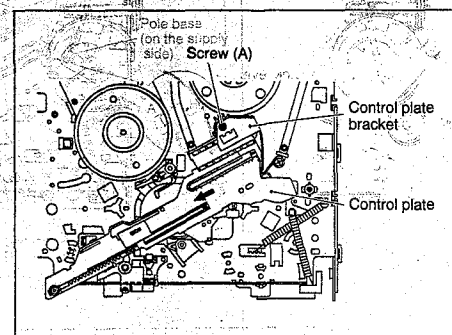


Fig. 2-2-23

2. How to install

- (1) Adjust the position of the idler arm pin as indicated in Fig. 2-2-24. (to the left of center of the R section).
- (2) Bring the positioning hole of the take-up lever into alignment with the hole at the control plate guide and fix the position by inserting a 1.5 mm. hexagonal wrench.
- (3) Press-fit the pole base (on the supply side) as indicated by the arrow and install the control plate so that section A of the loading arm gear shaft fits into hole (A) of the control plate, section B of the control plate guide into hole (B), and the control plate comes under section C of the rotary encoder guide and section D of the loading arm (on the take-up side). Then slide the whole control plate in the arrow-indicated direction. (See Fig. 2-2-25).
- (4) Make sure that the mark E of the control plate is in alignment with the mark of the loading arm gear shaft. (See Fig. 2-2-25).
- (5) Pull off the hexagonal wrench for positioning.

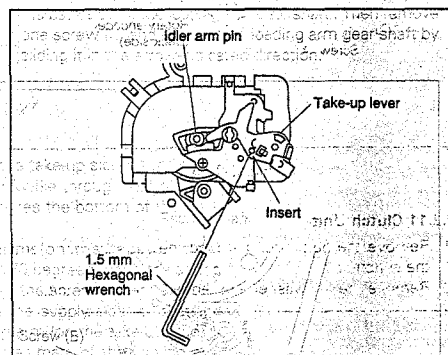


Fig. 2-2-24

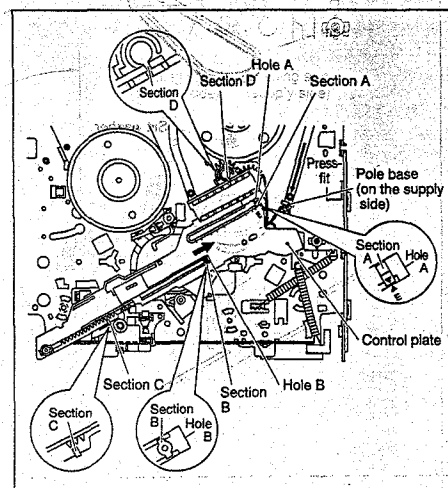


Fig. 2-2-25

2.2.16 Loading Arm (on the supply or take-up side) and Loading Arm Gear Shaft

1. How to remove

- (1) Remove the loading arm (on the supply side) by loosening screw (A) in Fig. 2-2-26.
- (2) Remove screw (B) in Fig. 2-2-26 and slide the pole base in the loading direction with the spring held on the pole base (on the take-up side). (See Fig. 2-2-26).
- (3) Pull the spring out of the pole base. Turn the loading arm clockwise through about 45 degrees so that the notch of the loading arm is in alignment with the projection of the loading arm gear shaft and lift it. Likewise, turn the loading arm counterclockwise through 180 degrees so that the notch is in alignment with the projection and remove the loading arm (on the take-up side). (See Fig. 2-2-27).
- (4) When removing the loading arm gear shaft, be sure of first removing the screw retaining the drum assembly (on the back side of the loading arm gear shaft). Then remove one screw (C) and remove the loading arm gear shaft by sliding it in the arrow-indicated direction.

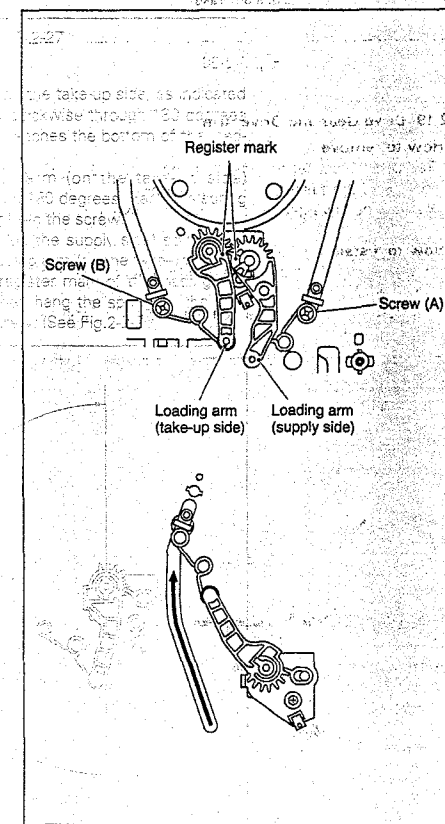


Fig. 2-2-26

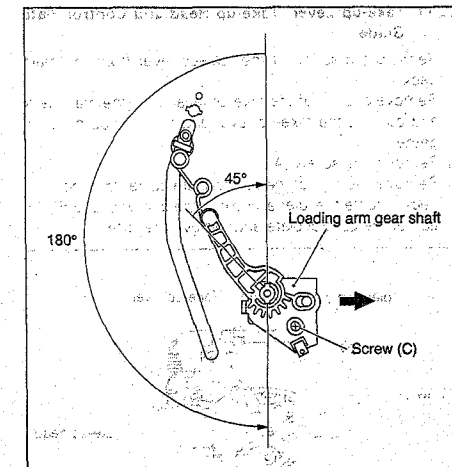


Fig. 2-2-27

2. How to install

- (1) Install the loading arm (on the take-up side) as indicated in Fig. 2-2-28 and turn it clockwise through 180 degrees so that the loading arm reaches the bottom of the loading arm gear shaft.
- (2) Then turn the loading arm (on the take-up side) counterclockwise through 180 degrees. Hang the spring on the pole base and tighten the screw.
- (3) Install the loading arm (on the supply side) so that the register mark of the loading arm (on the take-up side) is in alignment with the register mark of the loading arm (on the supply side). Then hang the spring on the pole base and tighten the screw. (See Fig. 2-2-26).

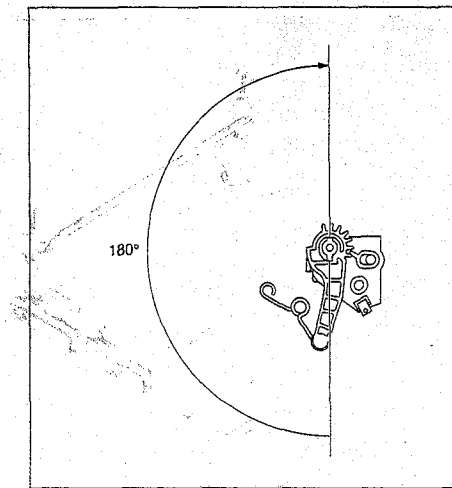


Fig. 2-2-28

2.2.17 Take-up Lever, Take-up Head and Control Plate Guide

- (1) Remove the spring of the take-up lever from the main deck.
- (2) Remove one lug of the take-up lever from the main deck and pull out the take-up lever and the take-up head together.
- (3) Remove one screw (A).
- (4) Remove two lugs of the control plate guide from the main deck. Locate the idler arm pin in the center of the R section of the control plate and remove the latter.

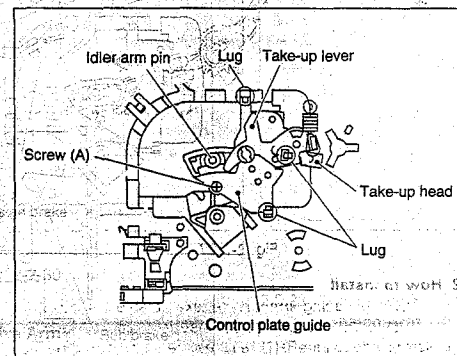


Fig. 2-2-29

2.2.18 Capstan Brake

- (1) Move lug A of the capstan brake in the arrow-indicated direction so that it comes into alignment with the notch of the main deck. (See Fig. 2-2-30)
- (2) Remove lug B of the capstan brake from the main deck and remove the capstan brake.

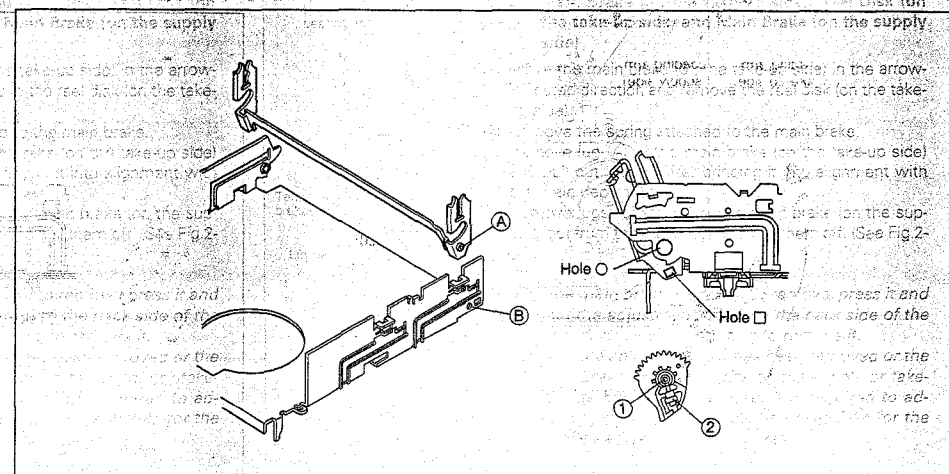
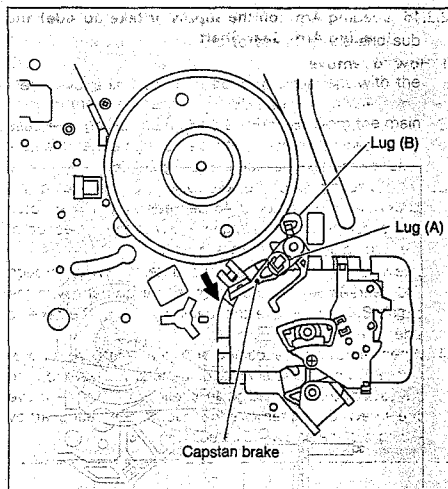


Fig. 2-2-31



2.2.19 Drive Gear and Drive Arm

1. How to remove

- (1) Remove the cassette holder assembly. (See 2.2.3 How to remove the cassette holder assembly)
- (2) Pull out the drive gear and remove the drive arm.

2. How to install

- (1) Insert section A of the drive arm into section B of the main deck.
- (2) Insert section ① of drive gear into hole O of the drive arm and section ② into hole □. (See Fig. 2-2-31)

2.2.20 Sub Brake (on the take-up side)

- (1) Remove the spring attached to the lid guide and sub brake.
- (2) Bring lug A of the sub brake into alignment with the notch of the main deck.
- (3) Remove lugs B and C of the sub brake from the main deck and remove the sub brake.

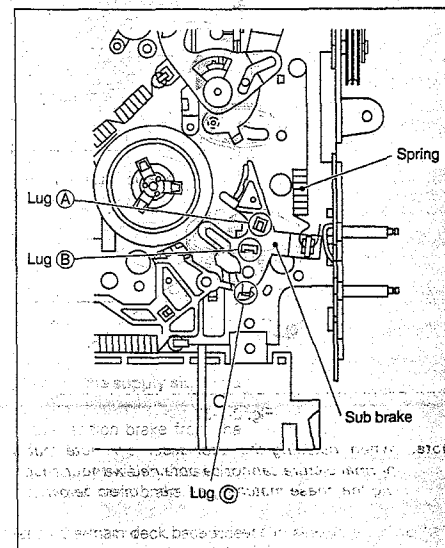


Fig. 2-2-32

2.2.21 Main Brake (on the take-up side), Reel Disk (on the take-up side) and Main Brake (on the supply side)

- (1) Move the main brake (on the take-up side) in the arrow-indicated direction and remove the reel disk (on the take-up side).
- (2) Remove the spring attached to the main brake.
- (3) Remove lug A of the main brake (on the take-up side) and pull out lug B after bringing it into alignment with the main deck notch.
- (4) Remove lugs C and D of the main brake (on the supply side) from the main deck and pull them off. (See Fig. 2-2-33)

Note: If the main brake is difficult to remove, press it and hold the adjustment pin from the back side of the main deck when attempting to remove it. After the adjustment pin has been removed or the main brake or the reel disk on the supply or take-up side have been replaced, it is required to adjust the main brake torque. See page 2-24 for the detailed adjustment procedures.

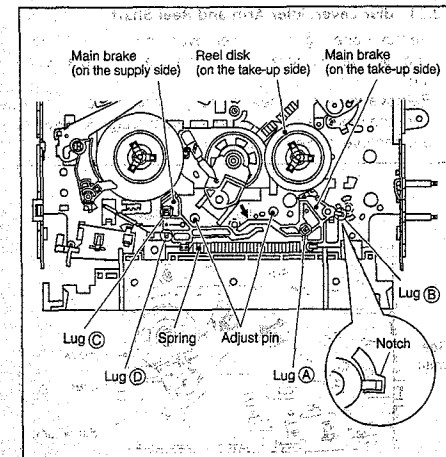


Fig. 2-2-33

2.2.22 Tension Brake, Reel Disk (on the supply side) and Tension Arm

- (1) Remove the three lugs of the tension brake from the main deck and pull them off.
- (2) Remove the reel disk (on the supply side) by loosening in the arrow-indicated direction the main brake (on the supply side).
- (3) Remove the tension spring on the main deck back side and remove the lugs of the tension arm bearing to pull up and remove the tension arm. (See Fig. 2-2-34)

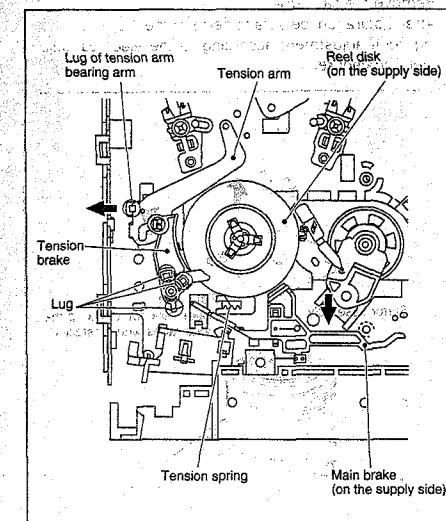


Fig. 2-2-34

2.2.23 Idler Lever, Idler Arm and Reel Shaft

- (1) Remove one lug of the idler lever from the main deck and remove the hook fitted in the idler arm hole by lifting it.
- (2) Remove the slit washer and pull out the idler arm.
- (3) Turn the reel shaft counterclockwise through 60 degrees and remove it. (See Fig. 2-2-35)

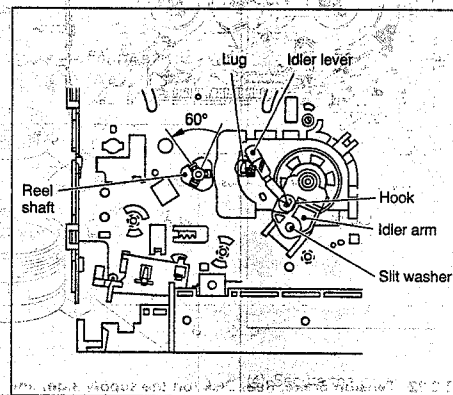


Fig. 2-2-35

2.2.24 Stator Assembly

- (1) Remove two screws (A).
- (2) Remove the stator assembly by lifting in the arrow-indicated direction (Take care that the brush spring does not jump out).
- (3) Remove the flat cable.
- (4) After installation, be sure to perform the 3.2.1 PB switching point adjustment according to the electrical adjustment procedure.

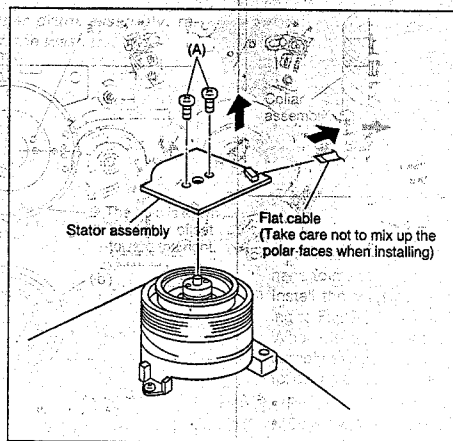


Fig. 2-2-36

2.2.25 Rotor Assembly

- (1) Remove the stator assembly.
- (2) Remove the two screws (B) and remove the rotor assembly.

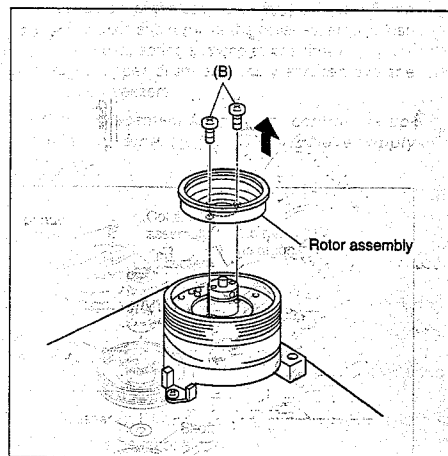


Fig. 2-2-37

Note: When installing the rotor assembly, note that a normal picture cannot be obtained without ensuring the phase matching as mentioned below.

- (3) Match the phases of the upper drum and the rotor assembly as indicated in Fig. 2-2-38.
- (4) Place the upper drum hole (a) over the rotor assembly holes (b) (with three holes to be aligned) and tighten the two screws (B). (See Fig. 2-2-38)

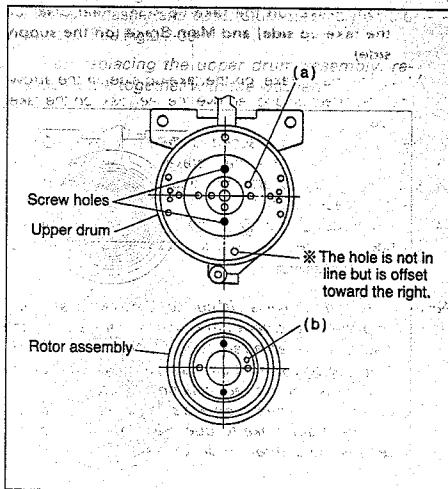


Fig. 2-2-38

2.2.26 Upper Drum Assembly

1. How to remove

- (1) Remove the stator assembly and rotor assembly. (See Fig. 2-2-36 and 2-2-37)
- (2) Loosen the screw of the collar assembly using a 1.5 mm hexagonal wrench, and remove the collar assembly. Also remove the brush, spring and cap at one time.
- (3) Remove the upper drum assembly and remove the washer using tweezers.

Note: When replacement is required, control the up-down movement of the brush. Never apply grease.

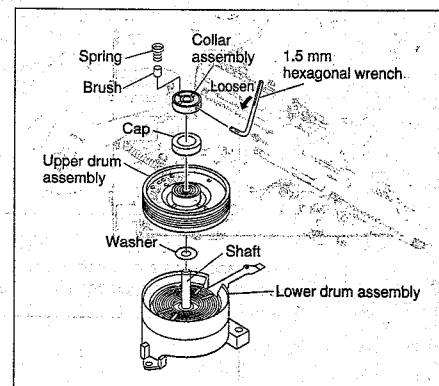


Fig. 2-2-39 Upper drum assembly-1

2. How to install

- (1) Clean coil parts of the lower drum assembly and the newly installed upper drum assembly with an air brush in advance. (See Fig. 2-2-40).
- (2) Install a new washer and upper drum assembly on the drum shaft. (See Fig. 2-2-39)

Note: When replacing the upper drum assembly, replace it together with the washer.

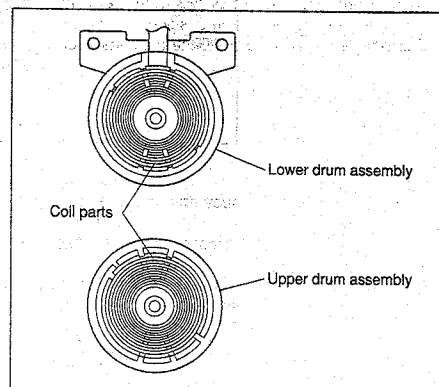


Fig. 2-2-40

- (3) Position the collar assembly as indicated in Fig. 2-2-41, while controlling its up-down movement.

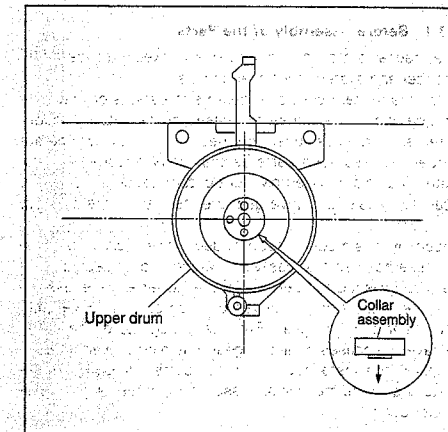


Fig. 2-2-41

- (4) Secure the collar assembly in position with a hexagonal wrench while pressing its top with the fingers.

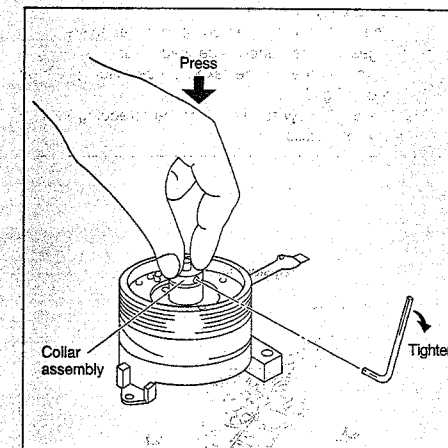


Fig. 2-2-42

- (5) After installation, gently turn the upper drum with your hand to make sure that it turns normally.
- (6) Install the rotor assembly and stator assembly according to Fig. 2-2-36 and 2-2-38.
- (7) When installation is complete, clean the upper drum assembly and lower the drum assembly and carry out the following adjustments.
 - PB switching point adjustment
 - Slow tracking adjustment
 - Compatibility adjustment (Be sure to check for compatibility for the EP mode.)

2.3 MAJOR PARTS INSTALLATION (PHASE MATCHING BETWEEN MECHANICAL PARTS)

2.3.1 Before Assembly of the Parts

The mechanism of this unit is closely linked with the rotary encoder and system controller circuits.

Since the system controller detects the status of mechanical operation in response to phases of the rotary encoder (internal switch positions), the mechanism may not operate properly unless such parts as the rotary encoder, control plate, loading arm assembly, major parts, cassette gear, limit gear, relay gear and drive gear are installed in their correct positions.

Especially, this model is not provided with any cassette housing assembly, so that cassette loading and unloading must be accomplished by operation of the cassette holder assembly. The latter is in turn driven by such parts as drive gear, relay gear and limit gear. Exercise enough care, therefore, to have the phases of all this gear matching one another.

Perform the installation of major parts (including phase matching) in the mechanism assembling mode as in the previous section.

2.3.2 Loading Arm Assembly (on the Supply or Take-up Side)

(1) Return the pole base assembly to the foremost position in the unloading direction.

(2) Install the loading arm assembly so that the register mark on the gear of the supply side loading arm is in alignment with the one on the take-up side loading arm as indicated in Fig. 2-3-1.

See 2.2.16 "2. How to install" of the foregoing section for details of installation.

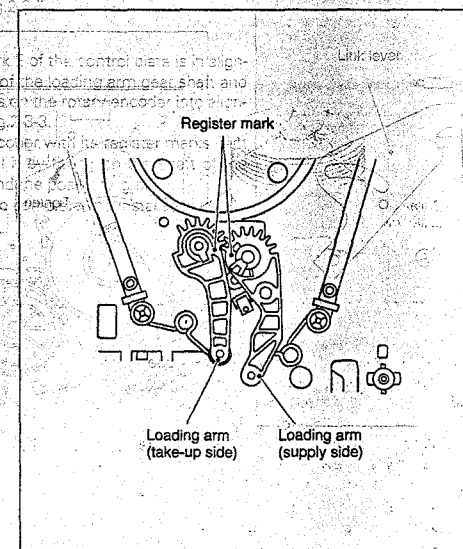


Fig. 2-3-1

2.3.3 Control Plate

(1) With register marks on the both loading arm assemblies in alignment, install the control plate so that the mark ▼ on the loading arm gear shaft is in alignment with mark E of the control plate. (See Fig. 2-3-2)

See 2.2.15 "2. How to install" of the foregoing section for details of installation.

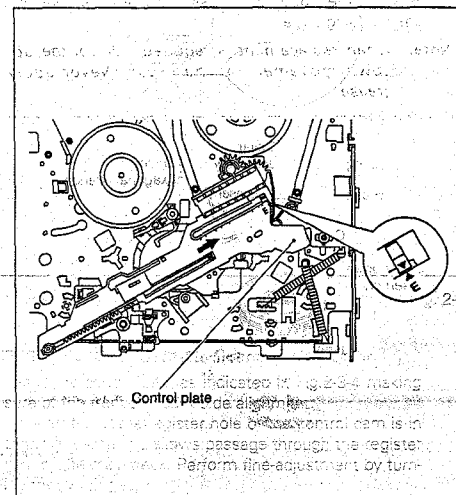


Fig. 2-3-2

2.3.4 Rotary Encoder

(1) Make sure that the mark E of the control plate is in alignment with the mark ▼ of the loading arm gear shaft and bring the register marks on the rotary encoder into alignment as indicated in Fig. 2-3-3.

(2) Turn over the rotary encoder with its register marks kept in alignment and install it by fitting on the shaft of the rotary encoder guide and the positioning pin.

(3) Tighten the screw (A) to complete the installation.

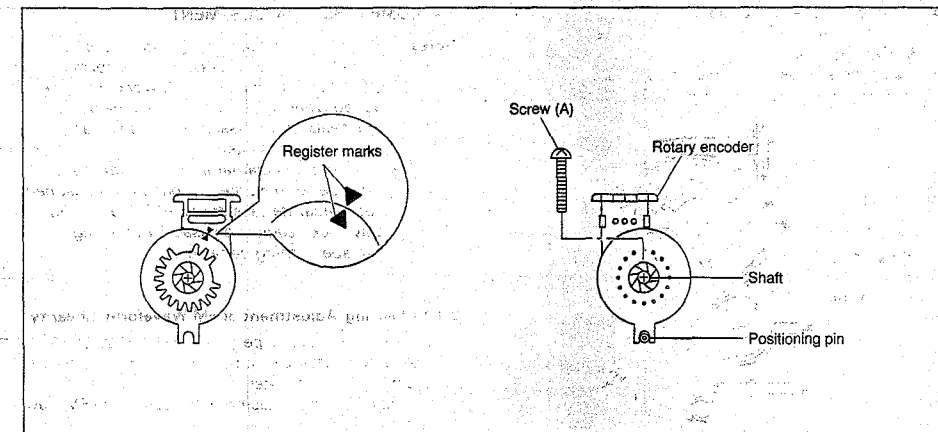
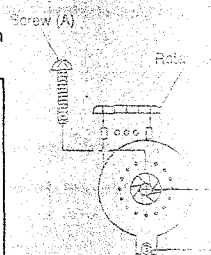


Fig. 2-3-3

2.3.5 Control Cam, Cassette Gear and Link Lever

(1) Install the control cam as indicated in Fig. 2-3-4 making sure of the front and back side alignment.

Note here that the register hole of the control cam is in alignment with and allows passage through the register hole of the main deck. Perform fine-adjustment by turning the worm gear.

(2) Install the cassette gear by pushing it until it is locked with a clicking sound. (See Fig. 2-3-4)

(3) Insert section (A) of the link lever into section (B) of the control plate as shown in Fig. 2-3-5.

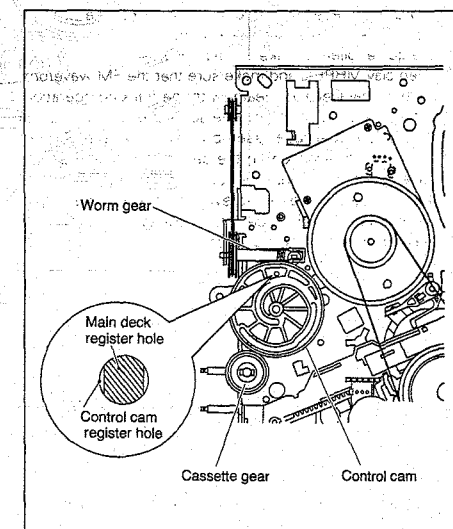


Fig. 2-3-4

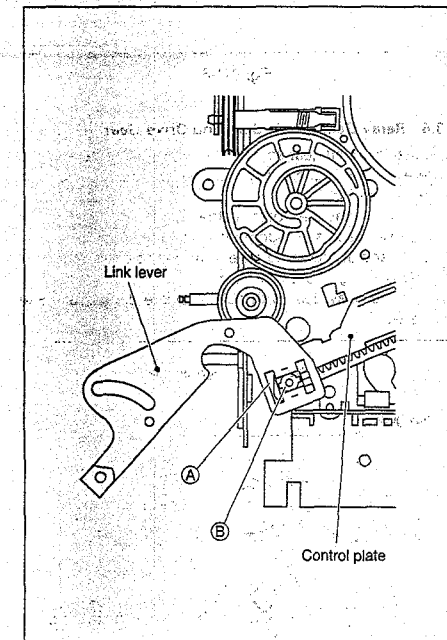


Fig. 2-3-5

- (4) Turn the link lever clockwise and mount it on the control cam center shaft (A) and the control cam left-side shaft (B). (See Fig.2-3-6).
- (5) Fasten the slit washers at two points (A) and (B).

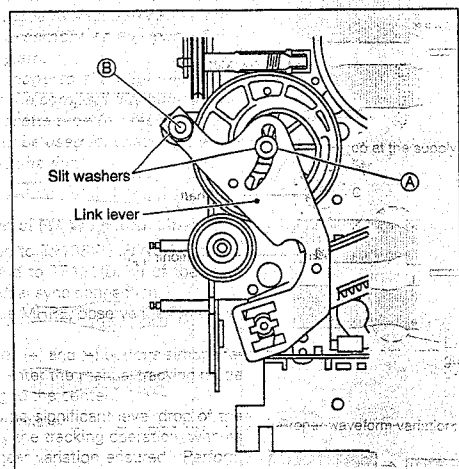


Fig. 2-3-6

2.3.6 Relay Gear, Limit Gear and Drive Gear

- (1) Install the limit gear so that the notch at its outer circumference is in alignment with the register hole of the main deck. (See Fig.2-3-7).
- (2) Install so that the notch at the outer circumference of the relay gear is in alignment with the notch of the main deck, and at the same time, that the hole A of the relay gear is in alignment with hole A of the limit gear and hole B of the relay gear with hole B of the drive gear. (See Fig.2-3-7).

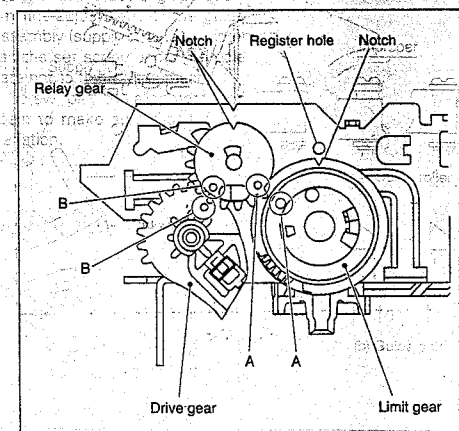


Fig. 2-3-7

2.4 COMPATIBILITY ADJUSTMENT

- Notes:**
- Although compatibility adjustment is very important, it is not necessary to perform this as part of the normal servicing work. It will be required when you have replaced the audio control head, drum assembly or any part of the tape transport system.
 - To avoid any damage to the alignment tape while performing the compatibility adjustment, get a separate cassette tape (for recording and play back) ready to be used for checking the initial tape running behavior.

2.4.1 Checking/Adjustment of FM Waveform Linearity

- (1) Connect the oscilloscope to TP106(PB FM/COL) of the main board assembly and to TP111(D.FF) of the main board assembly for external sync connection.
- (2) Playing the alignment tape MHPE, observe the FM waveform.
- (3) Press the channel buttons (+) and (-) buttons simultaneously during playback to enter the manual tracking mode (This also brings tracking to the center.)
- (4) Make sure that there is no significant level drop of the FM waveform caused by the tracking operation, with its generally parallel and linear variation ensured. Perform the following adjustments when required. (Fig.2-4-1)
- (5) Slightly loosen the set screw under the pole base assembly with a 1.25 mm hexagonal wrench (Take care not to loosen too much). (Fig.2-4-2)
- (6) Reduce the FM waveform while pressing the channel buttons (+, -) during playback. If a drop in level is found on the left side as shown in Fig.2-4-3, turn the guide roller of the pole base assembly (supply side) with the roller driver (PTU94002) to make the FM waveform linear. If a drop in level is on the right side, likewise turn the guide roller of the pole base assembly (take-up side) with the guide roller to make it linear. (Fig.2-4-3)
- (7) Then play MHPE-L and make sure that the FM waveform varies in parallel and linearly with the tracking operation. When required, perform fine-adjustment of the guide roller of the pole base assembly (supply or take-up side).
- (8) After adjustment, tighten the set screw under the pole base assembly. (Take care not to tighten too much)
- (9) After tightening the set screw, play the alignment tape MHPE and MHPE-L again to make sure that the FM waveform has correct variation.

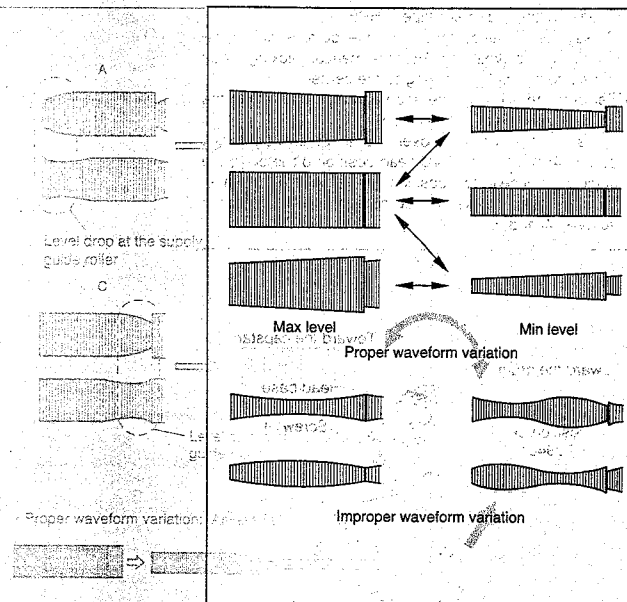


Fig. 2-4-1

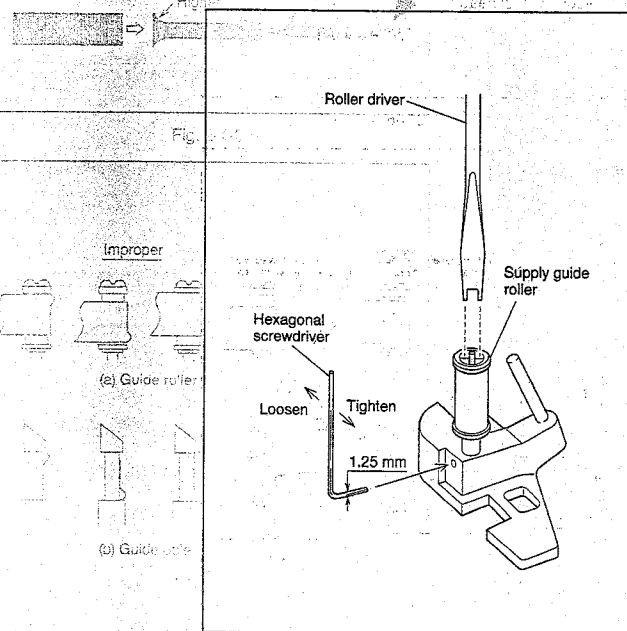


Fig. 2-4-2

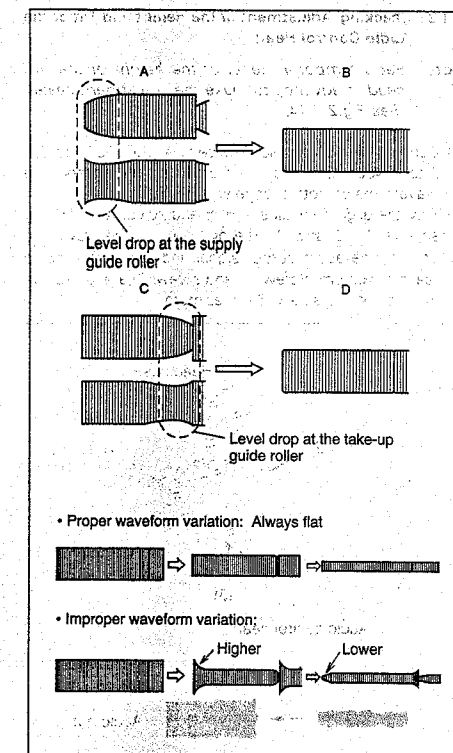


Fig. 2-4-3

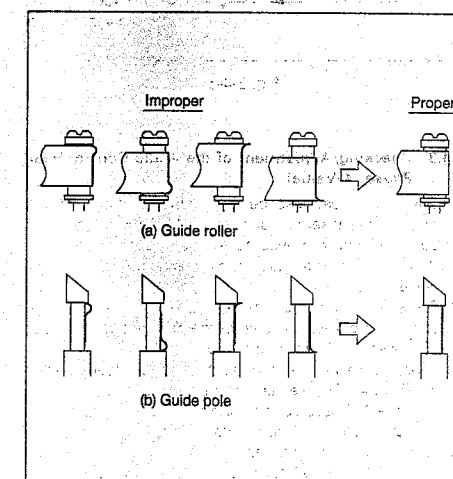


Fig. 2-4-4

2.4.2 Checking/Adjustment of the Height and Tilt of the Audio Control Head

Note: Set a temporary level of the height of the A/C head in advance to make the adjustment easier. (See Fig. 2-2-14)

- Connect CH-1 of the oscilloscope to AUDIO OUT and CH-2 to TP4001 (CTL P) of the main board and observe the waveforms on both channels in the ALT mode.
- Play the alignment tape MHPE and adjust it by turning screws (1), (2) and (3) little by little until the waveform of both the audio output signal and the control pulse reach maximum. Screw (1) and screw (3) are for adjustment of tilt and screw (2) for azimuth.

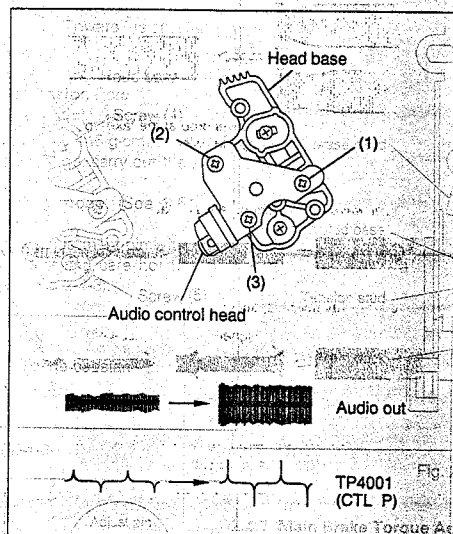


Fig. 2-4-3

2.4.3 Checking/Adjustment of the Audio Control Head Phase (X-Value)

- Connect the oscilloscope to TP106 (PB FM/COL) of the main board assembly and to TP111 (D.F.F) of the main board assembly for external sync connection.
- Play the alignment tape MHPE and observe the FM waveforms.
- Press the channel buttons (+) and (-) buttons simultaneously during playback to enter the manual tracking mode. (This also brings tracking to the center.)
- Loosen screws (4) and (5) so that the A/C head position bit (PTU94010) is set as indicated in Fig. 2-4-6.
- Turn the A/C head position and first move the audio control head fully up to the capstan head. Then gradually return the audio control head toward the drum and stop it where the FM waveform reaches its maximum for the first time. Then tighten screw (4) temporarily.

- Then play the alignment tape MHPE-L.
- Press the channel buttons (+) and (-) buttons simultaneously during playback to enter the manual tracking mode. (This also brings the tracking to the center.)
- Perform the tracking operation and make sure that the FM waveform is at its maximum.
- If it is not at maximum, loosen the temporarily tightened screw (4) and turn the A/C head position bit to bring the audio control head to a position, around where the waveform reaches its maximum for the first time. Then tighten screws (4) and (5).

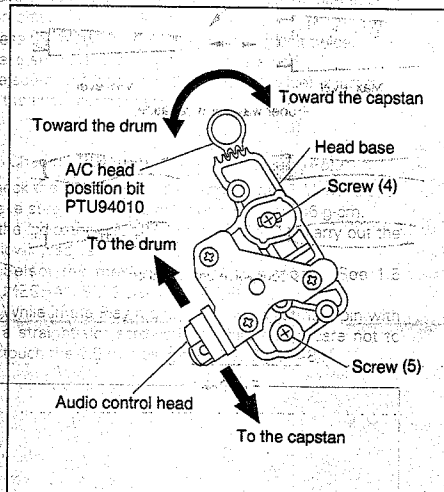


Fig. 2-4-6

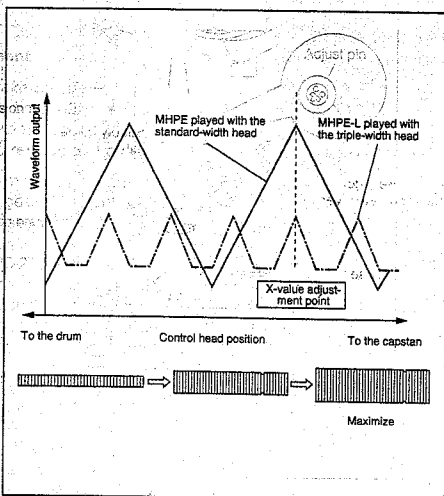


Fig. 2-4-7

2.4.4 Checking the Triple-width Auto Tracking

Note: Set the remote control cable of the video recorder to A mode. (The unit set in B mode does not accept the remote control cable of the presetting unit.)

- Connect the oscilloscope to TP106 (PB FM/COL) of the main board assembly and to TP111 (D.F.F) of the main board assembly for external sync connection.
- Playing the alignment tape MHPE and observing the FM waveform, make sure that the auto tracking operation is complete.
- Press the button "D" of the presetting unit twice.
- Make sure that the MHPE-L is not ejected.
- If ejected, again perform the phase (X-value) adjustment of the audio control head.

2.4.5 Checking/Adjustment of the Tension Pole

- Check the back tension cassette gauge (PUJ48076-2) to make sure that the indicator points to 29 - 46 g-cm.
- If the indicated value is outside this range, carry out the following adjustment steps.
 - Select the mechanism servicing mode. (See 1.5 MECHANISM SERVICE MODE)
 - While in the Play mode, turn the adjustment pin with a straight-slot screwdriver while taking care not to touch the 2.5 mm dia. pole. (See Fig. 2-4-8).

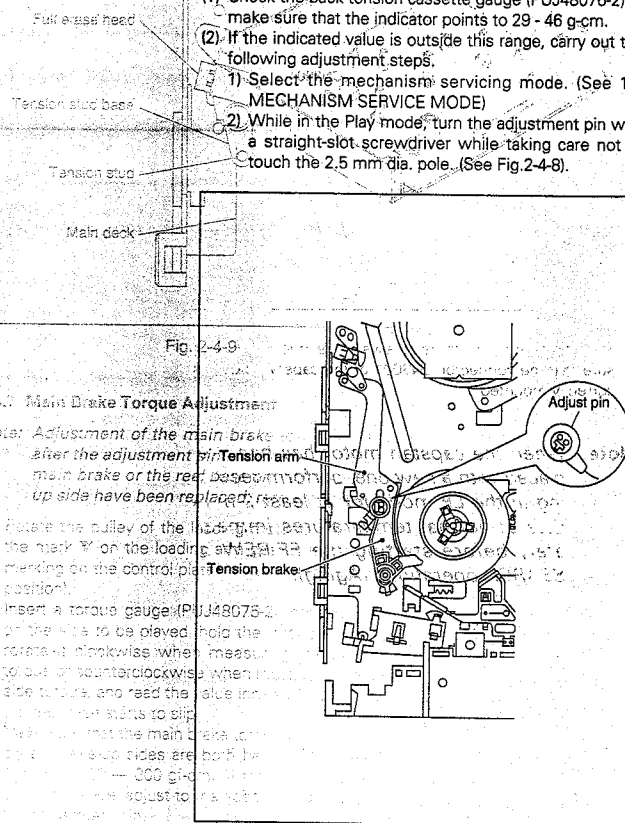


Fig. 2-4-8

2.4.6 Adjustment of the Tension Stud

- Adjust so that the left side of the tension stud is on the extension of the notch line of the main deck as indicated in Fig. 2-4-9.

Note: Adjustment is not usually necessary for the tension stud. Perform this adjustment only when it is out of position.

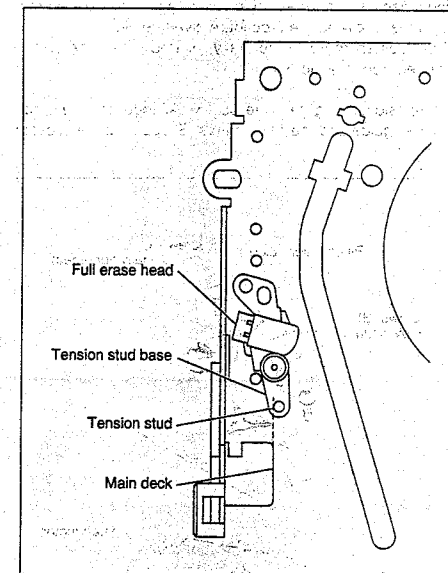


Fig. 2-4-9

2.4.7 Main Brake Torque Adjustment

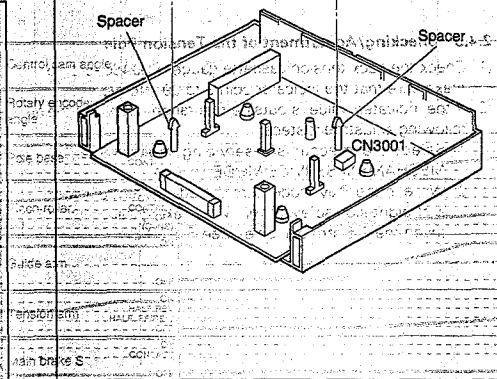
Note: Adjustment of the main brake torque is required after the adjustment pin has been removed or the main brake or the reel base on the supply or take-up side have been replaced, removed or attached.

- Rotate the pulley of the loading motor by hand to align the mark ▼ on the loading arm gear shaft with the ST marking on the control plate (i.e. set to the STOP mode position).
- Insert a torque gauge (PUJ48076-2) into the reel base on the side to be played, hold the torque gauge lightly, rotate it clockwise when measuring the supply side torque or counterclockwise when measuring the take-up side torque, and read the value indicated at the moment the reel base starts to slip.
- Make sure that the main brake torque values on the supply and take-up sides are both between 39.2 — 78.4 x 10³ N-m (400 — 800 gf-cm). If the value is outside the specified range, adjust to the specified value by rotating the adjustment pin. If an adjustment by using the adjustment pin is not possible, replace the main brake.

When the capstan motor has once been removed and then reinstalled out of the initial correct position in the rotational direction, the capstan motor current may be unstable during operation in high or low temperatures. This may result in greater Wow & Flutter and occasionally in power breakdown because of current over-load. Install the capstan motor while following the procedure given below.

(The capstan motor is centrally located when the unit is shipped from the factory.)

1. Provisionally tighten one screw (A) together the pinch roller guide and the two screws (B) securing the capstan motor.



3. Securely tighten the three screws (A), especially making sure that the connector CN3001 of the capstan motor is correctly mounted.

Note: When the capstan motor has been replaced with a new one, perform recording in the LP mode for at least 2 minutes at normal temperatures immediately before starting the FF/REW or SEARCH operations (Aging).

Mechanism mode FF/REW STOP REV SLOW/STILL PLAY

Control plate mark E U C FR ST R SL P

Rotary encoder

Channel	Signal	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360
A CH	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
B CH	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
C CH	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW

Rotary encoder

Channel	Signal	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360
A CH	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
B CH	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
C CH	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Control cam angle

Angle	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Rotary encoder angle

Angle	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Pole base

Signal	ON	HALF PRESS	CONTACT	OFF
ON	0	0	0	0
HALF PRESS	0	0	0	0
CONTACT	0	0	0	0
OFF	0	0	0	0

Pinch roller

Signal	ON PLAT	ON REV	CONTACT	OFF	(C-INS)
ON PLAT	0	0	0	0	0
ON REV	0	0	0	0	0
CONTACT	0	0	0	0	0
OFF	0	0	0	0	0
(C-INS)	0	0	0	0	0

Guide arm

Signal	ON	OFF
ON	0	0
OFF	0	0

Tension arm

Signal	ON	HALF REV	CONTACT	OFF
ON	0	0	0	0
HALF REV	0	0	0	0
CONTACT	0	0	0	0
OFF	0	0	0	0

Main brake S

Signal	ON	CONTACT	OFF
ON	0	0	0
CONTACT	0	0	0
OFF	0	0	0

Main brake T

Signal	ON	CONTACT	OFF
ON	0	0	0
CONTACT	0	0	0
OFF	0	0	0

Sub brake S

Signal	ON	OFF
ON	0	0
OFF	0	0

Sub brake T

Signal	ON	OFF
ON	0	0
OFF	0	0

Capstan brake

Signal	ON	OFF
ON</		

SECTION 3 CIRCUIT ELECTRICAL ADJUSTMENT

3.1 PRECAUTION

Electrical adjustment are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also do not attempt these adjustments unless the proper equipments is available.

3.1.1 Required test equipment

- ① Colour television or monitor
- ② Oscilloscope: wide-band, dual-trace, triggered delayed sweep
- ③ Frequency counter
- ④ Digital voltmeter
- ⑤ Signal generator: RF/IF sweep/marker
- ⑥ Signal generator: PAL colour bar, stairstep
- ⑦ Recording tape
- ⑧ Numeric-key remote controller (provided)

3.1.2 Required adjustment tools

Alignment tape (SP, stairstep) MHPE	Presetting unit PTU94008
Alignment tape (LP, stairstep) MHPE-L	

3.1.3 Colour bar signal, colour bar pattern

- PAL colour bar signal

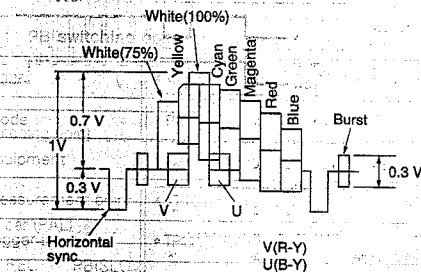


Fig. 3-1-1 PAL colour bar signal waveform

- PAL colour bar pattern

White	Yellow	Cyan	Green	Magenta	Red	Blue
White (75%)						
White (100%)						
Black						

Fig. 3-1-2 PAL colour bar pattern

3.2 SERVO CIRCUIT

- Notes:**
- Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.
 - Set VCR to the mode A by remote controller.
 - Use only buttons "O", depressing other buttons during adjustment may cause adjustment errors.

3.2.1 PB switching point

Signal	• Alignment tape (MHPE), Stairstep
Mode	• PB
Equipment	• Oscilloscope
Measurement point	• J7101-pin 19 (VIDEO OUT)
Trigger slope (-)	• TP111 (DRUM FF)
Adjustment tool	• Presetting unit (PTU94008)
Specification	• $6.5 \pm 0.5H$

- (1) Connect an oscilloscope to J7101-pin 19 (VIDEO OUT) and external trigger from TP111 (negative slope).

- (2) Playback the stairstep signal of the alignment tape.

- (3) Press the "O" button of the presetting unit.

- (4) The adjustment is performed automatically.

Once the adjustment is performed, the VCR will go into the STOP mode.

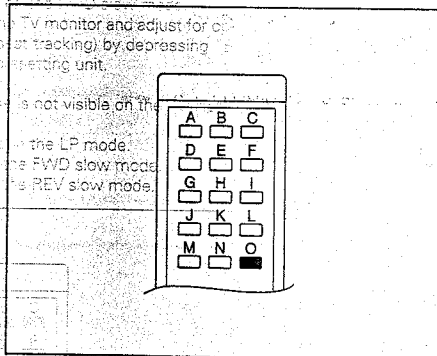


Fig. 3-2-1 Presetting unit

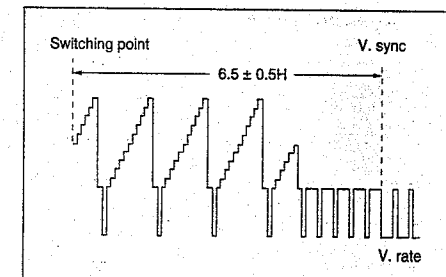


Fig. 3-2-2 PB switching point

3.2.2 Slow tracking preset

Signal	• Colour bar (PAL)
Mode	• SP/LP: REC → PB(SLOW)
Equipment	• TV-Monitor
Adjustment tool	• Presetting unit (PTU94008)
Specification	• Minimum noise

Note: Set VCR to the mode A by remote controller. Use only buttons "B" and "C", depressing other buttons during adjustment may cause adjustment errors.

- (1) Record a colour bar signal in the SP mode.
- (2) Playback recorded signal on the FWD slow mode.
- (3) Observe the display on the TV monitor and adjust for optimum noise condition (best tracking) by depressing "B" or "C" buttons of the presetting unit.
- (4) Depress the STOP button.
- (5) Confirm that the bar noise is not visible on the TV monitor in the slow mode.
- (6) Record a colour bar signal in the LP mode.
- (7) Repeat steps (2) to (5) in the FWD slow mode.
- (8) Repeat steps (2) to (5) in the REV slow mode.

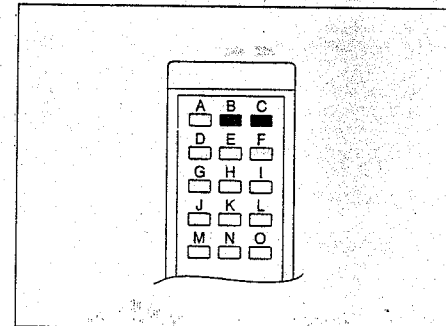


Fig. 3-2-3 Presetting unit

Note:

The system control circuit of this model has an automatic recognition about the ON-OFF control of the DOCTOR SYSTEM.

3.2.3 Dynamic drum preset

Signal	• Alignment tape [MHPE-L], Stairstep
Mode	• Automatic tracking OFF
Equipment	• Oscilloscope
Measurement point	• TP106 (PB FM)
Trigger slope (-)	• TP111 (DRUM FF)
Adjustment tool	• Presetting unit [PTU94008]
Specification	• FM waveform flat

Note : Set VCR to the mode A by remote controller.

- Connect an oscilloscope to TP106 and external trigger from TP111 (positive slope).
- Playback the LP stairstep portion of the alignment tape at LP 2x mode.
- Set the automatic tracking control to the OFF by simultaneously pressing the **///** button on the remote controller.
- Adjust for maximum level of playback FM waveform by depressing TV PROG. " + " or " - " buttons.
- Adjust by pressing "M+D" or "M+E" buttons of presetting unit for FM waveform is flat as shown in Fig. 3-2-5.
- Adjust for half level of playback FM waveform from maximum level by depressing TV PROG. " + " or " - " buttons.
- Readjust by pressing "M+D" or "M+E" buttons of presetting unit for FM waveform is flat as shown in Fig. 3-2-5.
- Record the colour bar signal in the LP mode and play it back in FWD slow mode.
- Repeat steps (4) and (5).

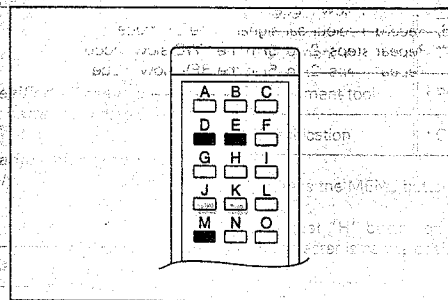


Fig. 3-2-4 Presetting unit

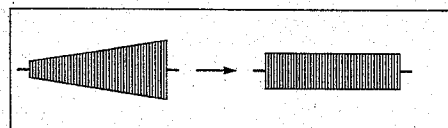


Fig. 3-2-5 PB FM

3.3 DEMODULATOR CIRCUIT (HR-DD858E ONLY)

Note: Unless otherwise specified, all measurement points and adjustment parts are located on the DEMODULATOR BOARD.

3.3.1 Stereo Separation

Signal	• Sweep generator output (90 dB, 1 kHz)
Mode	• EE
Equipment	• Oscilloscope
Measurement point	• CN6701-pin 8
Adjustment part	• VR6701 (SEPARATION 1)
Specification	• Minimum level

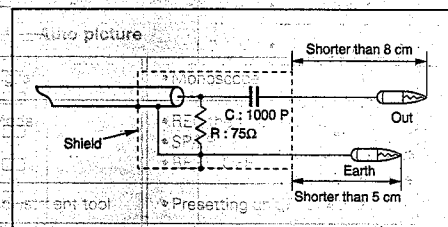


Fig. 3-3-1 Sweeper probe

- Use a sweeper probe as shown in Fig. 3-3-1.
- Supply 1 kHz R-only modulated IF signal to IF terminal of U/V tuner (front end).
- Connect an oscilloscope to CN6701-pin 8.
- Adjust VR6701 for minimum output level.

Repeat steps (2) to (5) in the LP mode.

3.4 VIDEO CIRCUIT

Notes: • Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.

• When perform this adjustment, remove the MECHANISM assembly.

Press the MENU button and display the character.

Adjust "H" button on the presetting unit so that the character is centre position.

Signal	• No signal
Mode	• EE
Equipment	• Frequency counter
Measurement point	• TL3001
Adjustment part	• C3018 (TIMER CLOCK)
Specification	• 1024.008 ± 0.001 Hz [976.5549 ± 0.0010 μsec.]

3.4 VIDEO CIRCUIT

Notes: • Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.

• Set VCR to the mode A by remote controller.

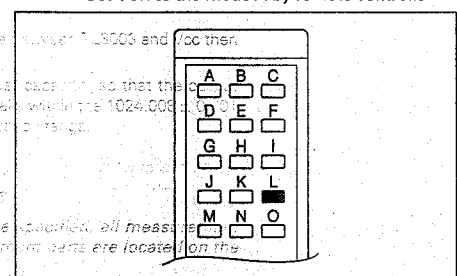


Fig. 3-4-1 Presetting unit

3.4.1 Auto picture

Signal	• Monoscope
Mode	• REC then PB • SP/LP • BEST: OFF
Adjustment tool	• Presetting unit [PTU94008]
Specification	• STOP mode

- Set B.E.S.T feature to OFF on MENU screen.
- Record a monoscope signal in the SP mode.
- Playback the recorded signal.
- Press the "L" button of the presetting unit during playback.
- Confirm that VCR will go into the STOP mode.
- Repeat steps (2) to (5) in the LP mode.

3.5 SYSCON CIRCUIT

Notes: • Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.

• When perform this adjustment, remove the MECHANISM assembly.

Press the MENU button and display the character.

Adjust "H" button on the presetting unit so that the character is centre position.

Signal	• No signal
Mode	• EE
Equipment	• Frequency counter
Measurement point	• TL3001 round (SYS. CLK)
Adjustment part	• C3018 (TIMER CLOCK)
Specification	• 1024.008 ± 0.001 Hz [976.5549 ± 0.0010 μsec.]

- Connect the frequency counter to TL3001(SYS.CLK) round and GND.
- Connect the short wire between TL3003(TEST) round and Vcc(5V).
- Short the leads of capacitor C3015 once in order to reset the IC3001.
- Disconnect the short wire between TL3003 and Vcc then connect it again quickly.
- Adjust the C3018 trimmer capacitor so that the output from TL3001(SYS.CLK) falls within the 1024.008 ± 0.001 Hz (976.5549 ± 0.0010 μsec.) range.

3.6 ON SCREEN CIRCUIT

Notes: • Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.

• Set VCR to the mode A by remote controller.

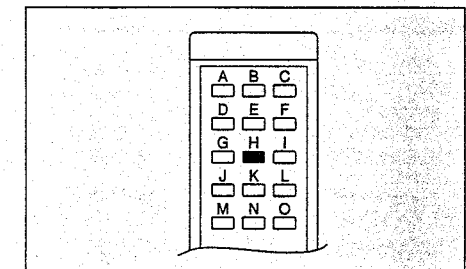


Fig. 3-6-1 Presetting unit

3.6.1 Character position

Signal	• No signal
Mode	• EE
Equipment	• TV-monitor
Adjustment tool	• Presetting unit
Specification	• Character centre

- Press the MENU button and display the on screen character.
- Adjust "H" button on the presetting unit so that the character is centre position.

- 3) Indication on schematic diagram
Voltage Indications for REC and PB mode on the schematic diagram are as shown below.



Note: If the voltage is not indicated on the schematic diagram, refer to the voltage charts.

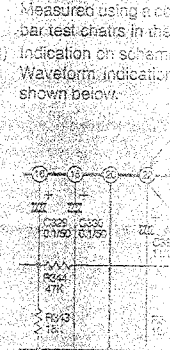
- 5) Waveform measurement

- 1) Video circuits
REC : Colour bar signal in SP mode, normal VHS mode
PB : Alignment tape, colour bar SP mode, normal VHS mode

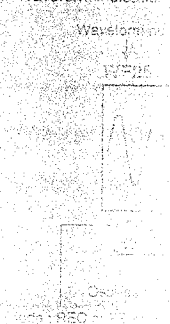
- 2) Audio circuits
REC : 1KHz, -8 dBs sine wave signal in SP mode, normal VHS mode
PB : REC then playback

- 3) Movie Camera circuits
Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode

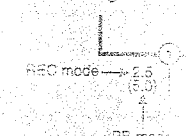
- 4) Indication on schematic diagram
Waveform indications on the schematic diagram are as shown below.



- 5) Waveform indication



- 4) Indication on schematic diagram
Voltage Indications for REC and PB mode on the schematic diagram are as shown below.



Note: If the voltage is not indicated on the schematic diagram, refer to the voltage charts.

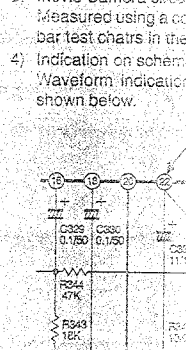
- 5) Waveform measurement

- 1) Video circuits
REC : Colour bar signal in SP mode, normal VHS mode
PB : Alignment tape, colour bar SP mode, normal VHS mode

- 2) Audio circuits
REC : 1KHz, -8 dBs sine wave signal in SP mode, normal VHS mode
PB : REC then playback

- 3) Movie Camera circuits
Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode

- 4) Indication on schematic diagram
Waveform indications on the schematic diagram are as shown below.



- 5) Waveform indication



NOTES OF SCHEMATIC DIAGRAM

Safety precautions

The Components identified by the symbol Δ are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.

1. Units of components on the schematic diagram

Unless otherwise specified.

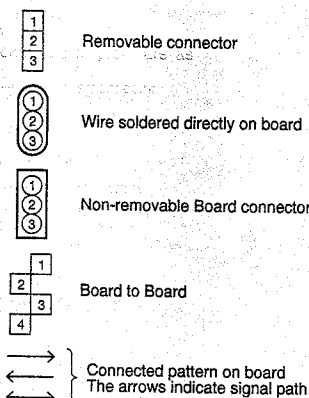
- 1) All resistance values are in ohm, 1/6 W, 1/8 W (refer to parts list).
Chip resistors are 1/16 W.
K: K Ω (1000 Ω), M: M Ω (1000K Ω)
- 2) All capacitance values are in μ F, (P: PF).
- 3) All inductance values are in μ H, (m: mH).
- 4) All diodes are 1SS133, MA165 or IN4148M (refer to parts list).

2. Indications of control voltage

AUX : Active at high

AUX or AUX(L) : Active at low

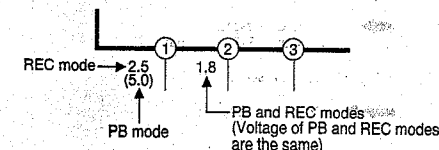
3. Interpreting Connector Indications



4. Voltage measurement

- 1) Video circuits
REC : Colour bar signal in SP mode, normal VHS mode
PB : Alignment tape, colour bar SP mode, normal VHS mode
— : Unmeasurable or unnecessary to measure
- 2) Audio circuits
REC : 1KHz, -8 dBs sine wave signal in SP mode, Normal VHS mode
PB : REC then playback it
- 3) Movie Camera circuits
Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode

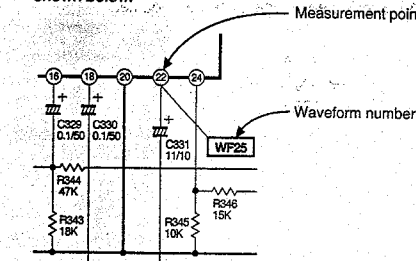
- 4) Indication on schematic diagram
Voltage Indications for REC and PB mode on the schematic diagram are as shown below.



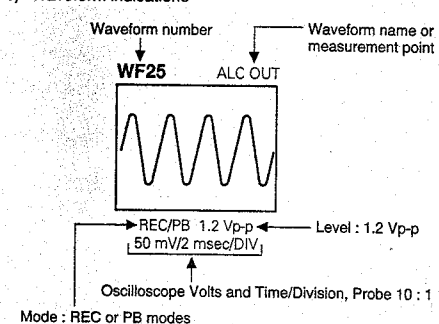
Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

5. Waveform measurement

- 1) Video circuits
REC : Colour bar signal in SP mode, normal VHS mode
PB : Alignment tape, colour bar SP mode, normal VHS mode
- 2) Audio circuits
REC : 1KHz, -8 dBs sine wave signal in SP mode, normal VHS mode
PB : REC then playback it
- 3) Movie Camera circuits
Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode
- 4) Indication on schematic diagram
Waveform indications on the schematic diagram are as shown below.



5) Waveform indications



CIRCUIT BOARD NO.

1. Foil and Component side (A side) are indicated as follows.

- 1) Foil side (B side):
Parts on the foil side are indicated.
- 2) Component side (A side):
Parts on the component side (parts face) are indicated.

2. Parts location guides

Parts location are indicated by guide scale on the circuit board.

REF. No.	LOCATION
R216	IC
IC101	IC

- B : Foil side
(A : Component side)
C : Chip component
D : Discrete component

3. Indication of the parts for adjustments

The parts for adjustments are surrounded with the circle as shown below.

Note:

For general information
to the Service Manual of GENERAL
Information 4 No. 82054D (January 1994).



indicated on the circuit board
by the parts not mounted on the circuit board.

4. Indication of the parts not mounted on the circuit board
"OPEN" is indicated by the parts not mounted on the circuit board.

R216

OPEN

CIRCUIT BOARD NO.

6. Signal path Symbols

The arrows indicate the signal path as follows.

- 1) Foil side (B side):
Parts on the foil side are indicated.
- 2) Component side (A side):
Parts on the component side (parts face) are indicated.



Playback signal path



Playback and recording signal path



Recording signal path
(including E-E signal path)



Capstan servo path



Drum servo path

3. Parts location guides

Parts location are indicated by guide scale on the circuit board.

(Example)

REF. No.	LOCATION
R216	IC
IC101	IC

- B : Foil side
(A : Component side)
C : Chip component
D : Discrete component

7. Indication of the parts for adjustments

The parts for adjustments are surrounded with the circle as shown below.

Note:

For general information
to the Service Manual of GENERAL
Information 4 No. 82054D (January 1994).



8. Indication of the parts not mounted on the circuit board

"OPEN" is indicated by the parts not mounted on the circuit board.

R216
OPEN

CIRCUIT BOARD NOTES

1. Foil and Component sides

- 1) Foil side (B side):
Parts on the foil side seen from foil face (pattern face) are indicated.
- 2) Component side (A side):
Parts on the component side seen from component face (parts face) are indicated.

2. Parts location guides

Parts location are indicated by guide scale on the circuit board.

REF. No.	LOCATION
IC	IC
IC101	IC

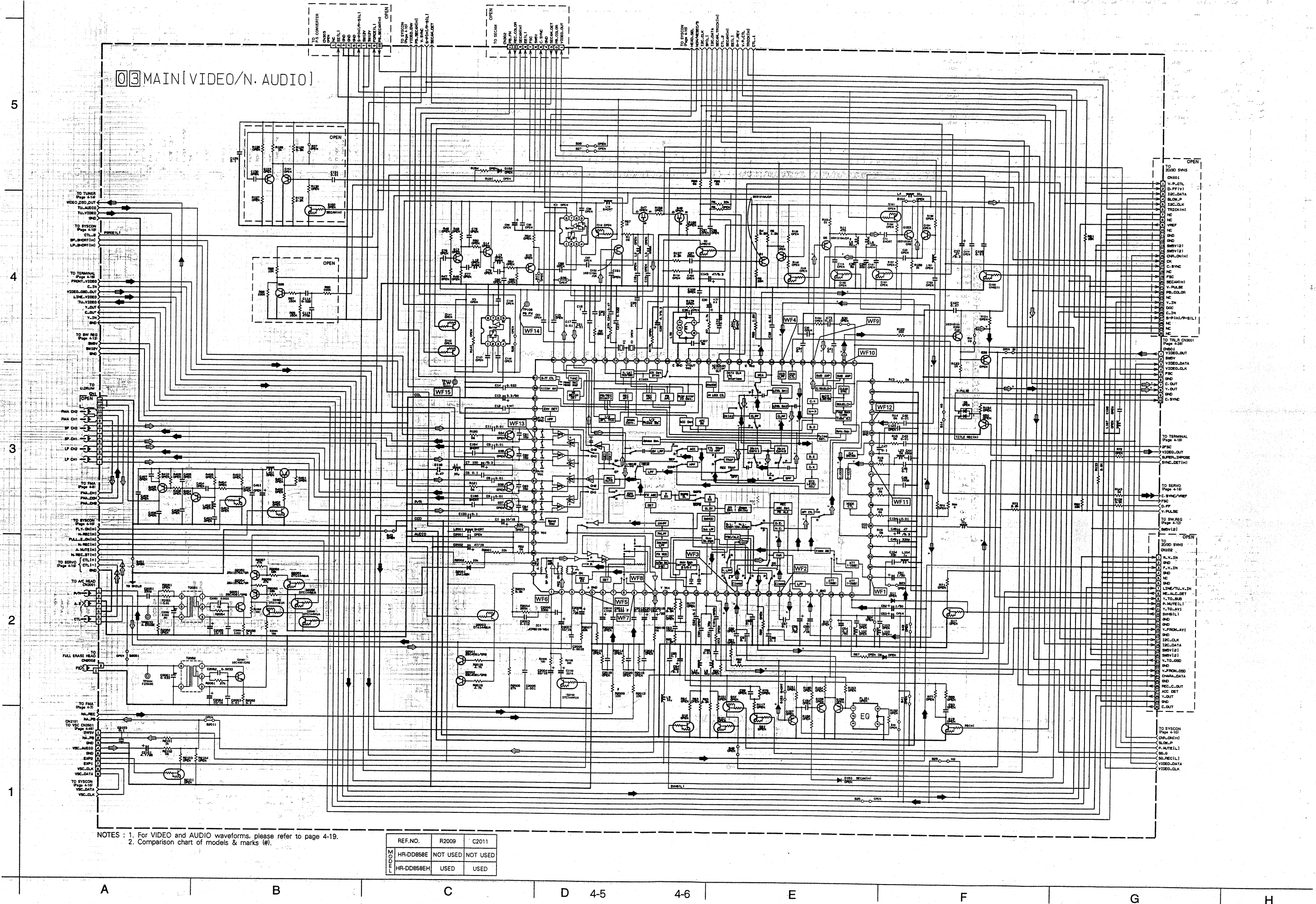
- B : Foil side
(A : Component side)
C : Chip component
D : Discrete component

Horizontal "A" zone
Vertical "6" zone

Note:

For general information in service manual, please refer
to the Service Manual of GENERAL INFORMATION Ed-
ition 4 No. 82054D (January 1994).

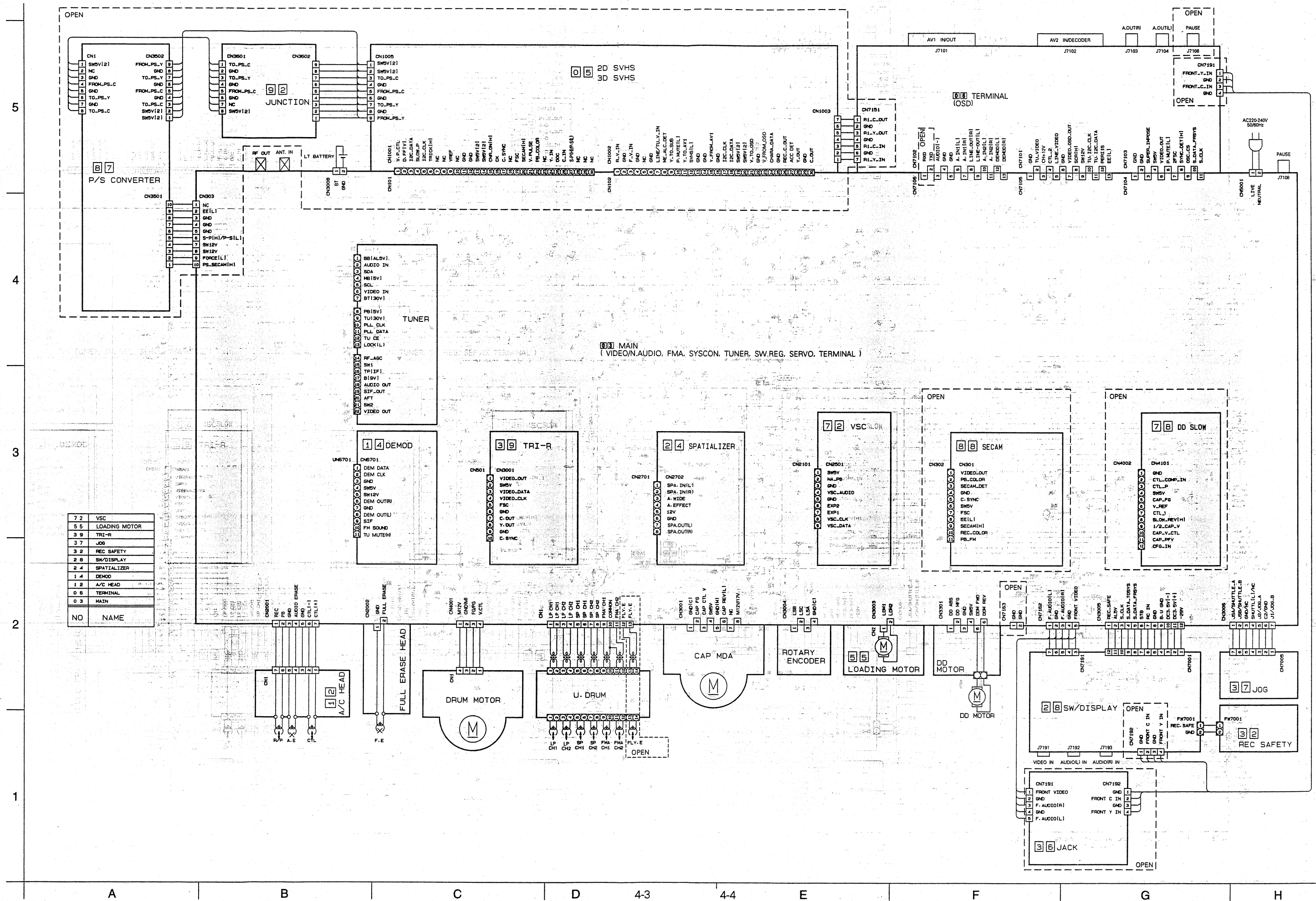
4.2 VIDEO/AUDIO SCHEMATIC DIAGRAM



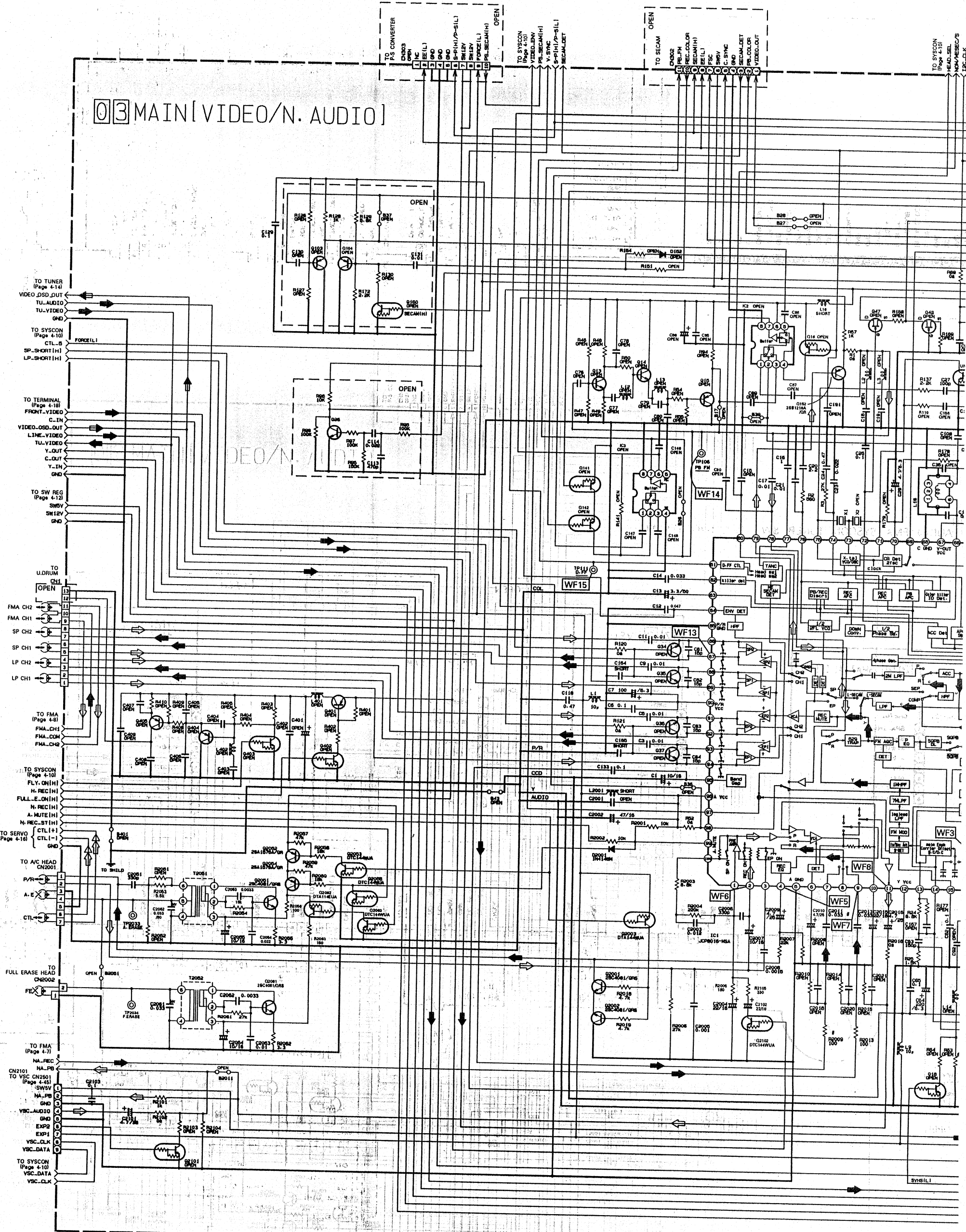
NOTES : 1. For VIDEO and AUDIO waveforms, please refer to page 4-19.
2. Comparison chart of models & marks (#).

REF.NO.	R2009	C2011
HR-DD858E	NOT USED	NOT USED
HR-DD858EH	USED	USED

4.1 BOARD INTERCONNECTIONS

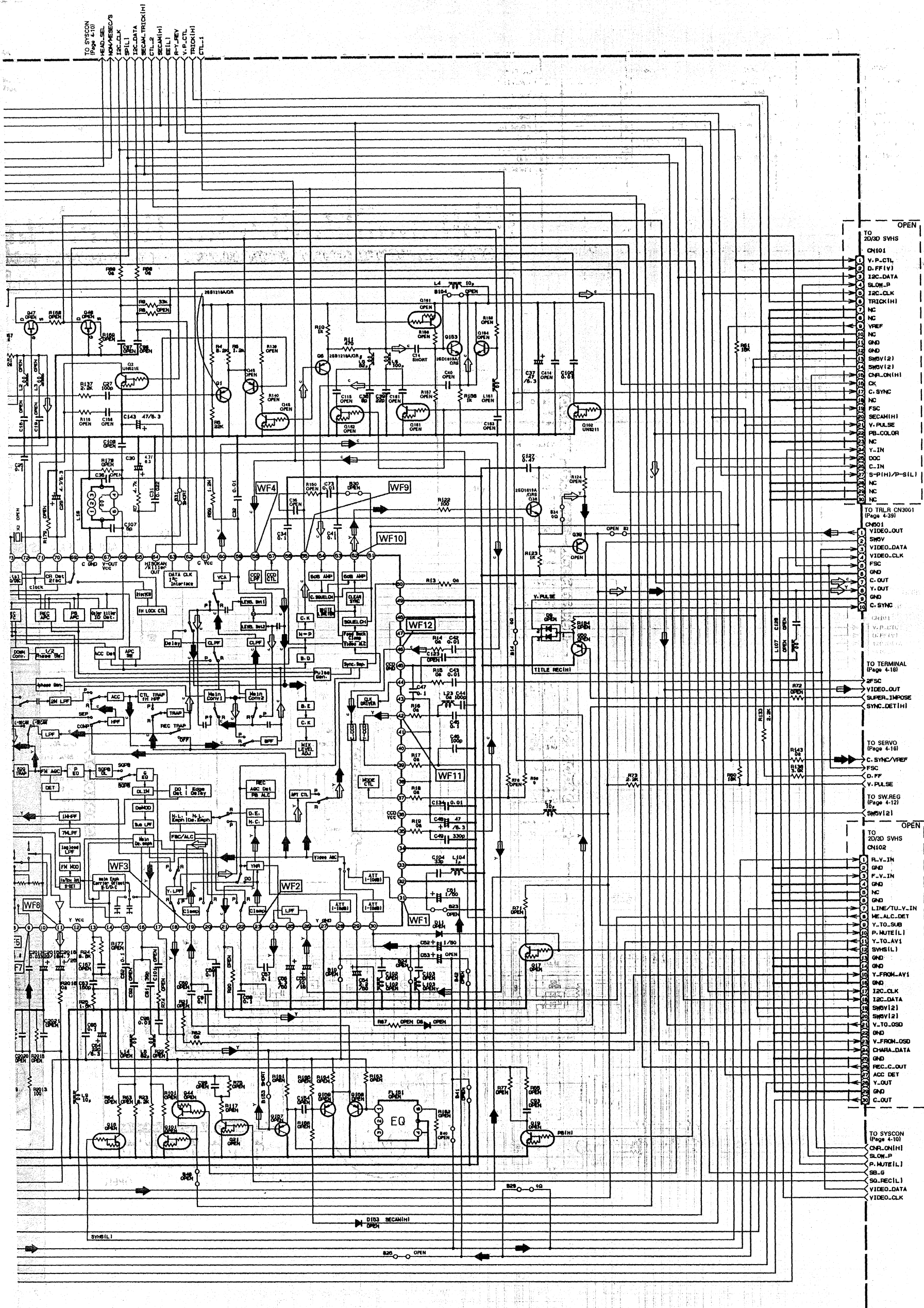


4.2 VIDEO/N.AUDIO SCHEMATIC DIAGRAM

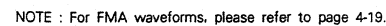


NOTES : 1. For VIDEO and AUDIO waveforms, please refer to page 4-19.
2. Comparison chart of models & marks (#).

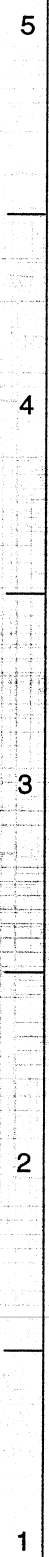
	REF.NO.	R2009	C2011
MODEL	HR-DD858E	NOT USED	NOT USED
	HR-DD858EH	USED	USED



ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

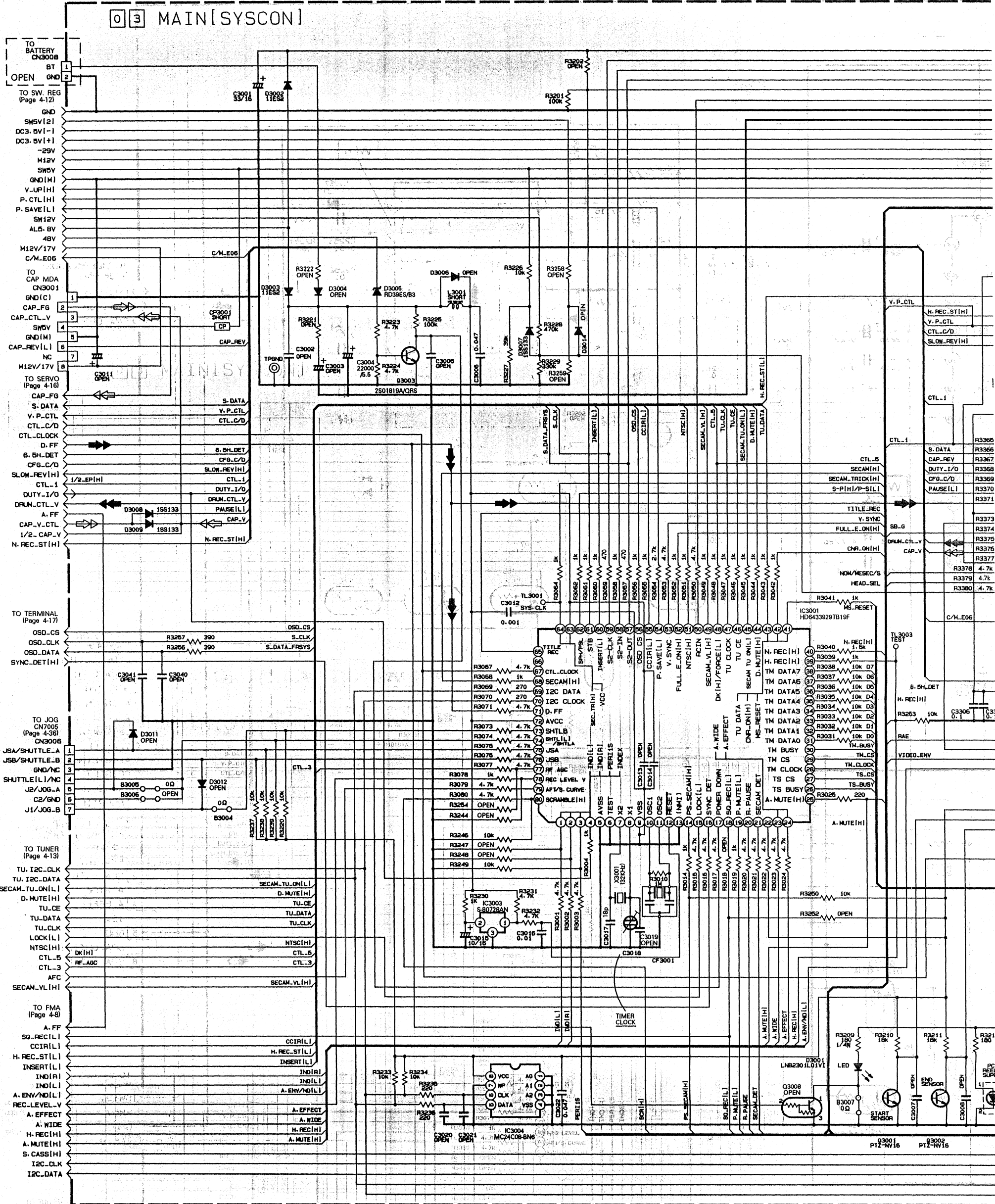


Ref: 10-00000000-00000000



A horizontal timeline with segments labeled A through H. Segment D is further divided into sub-segments 4-9 and 4-10.

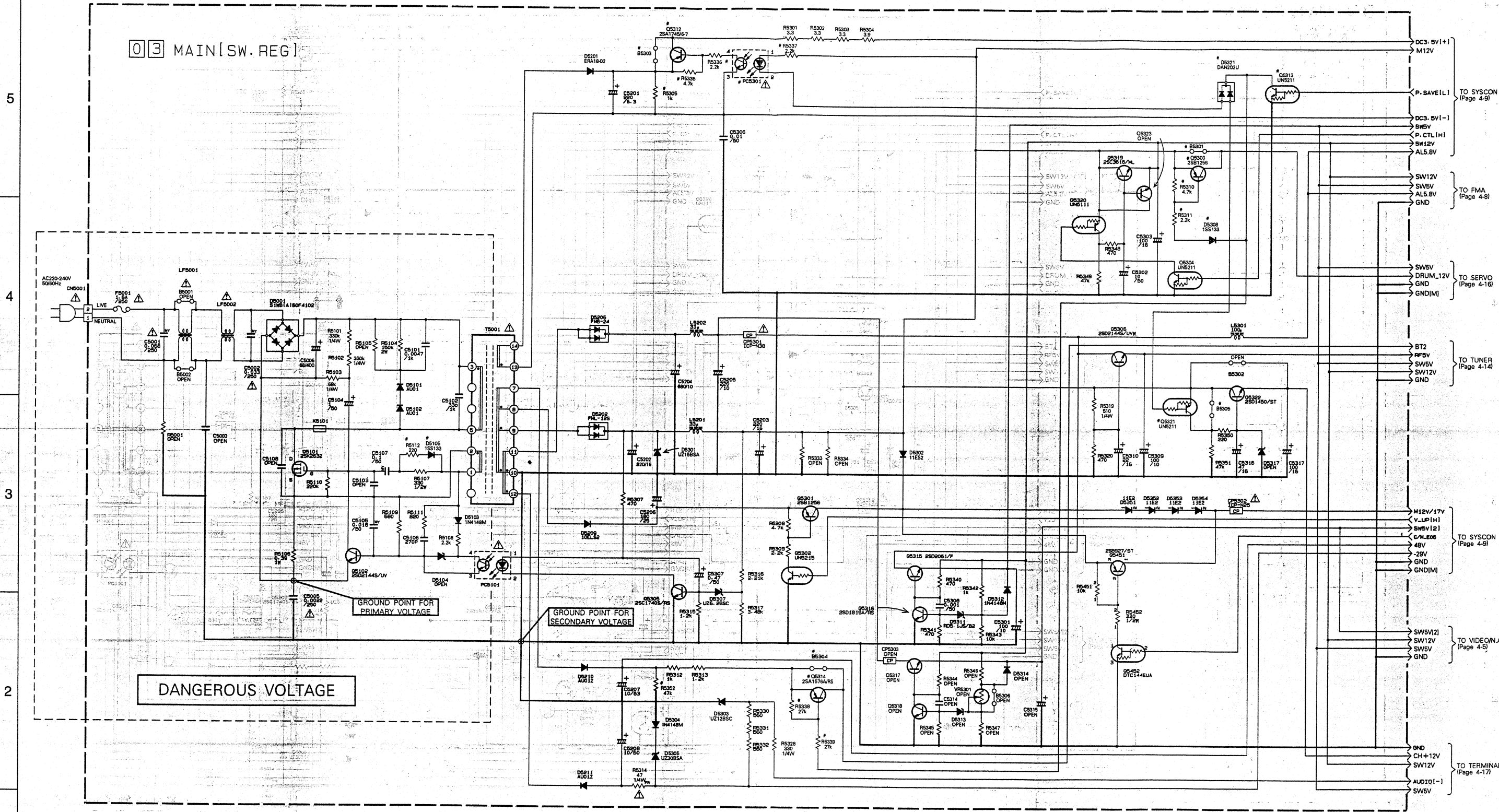
4.4 SYSTEM CONTROL SCHEMATIC DIAGRAM



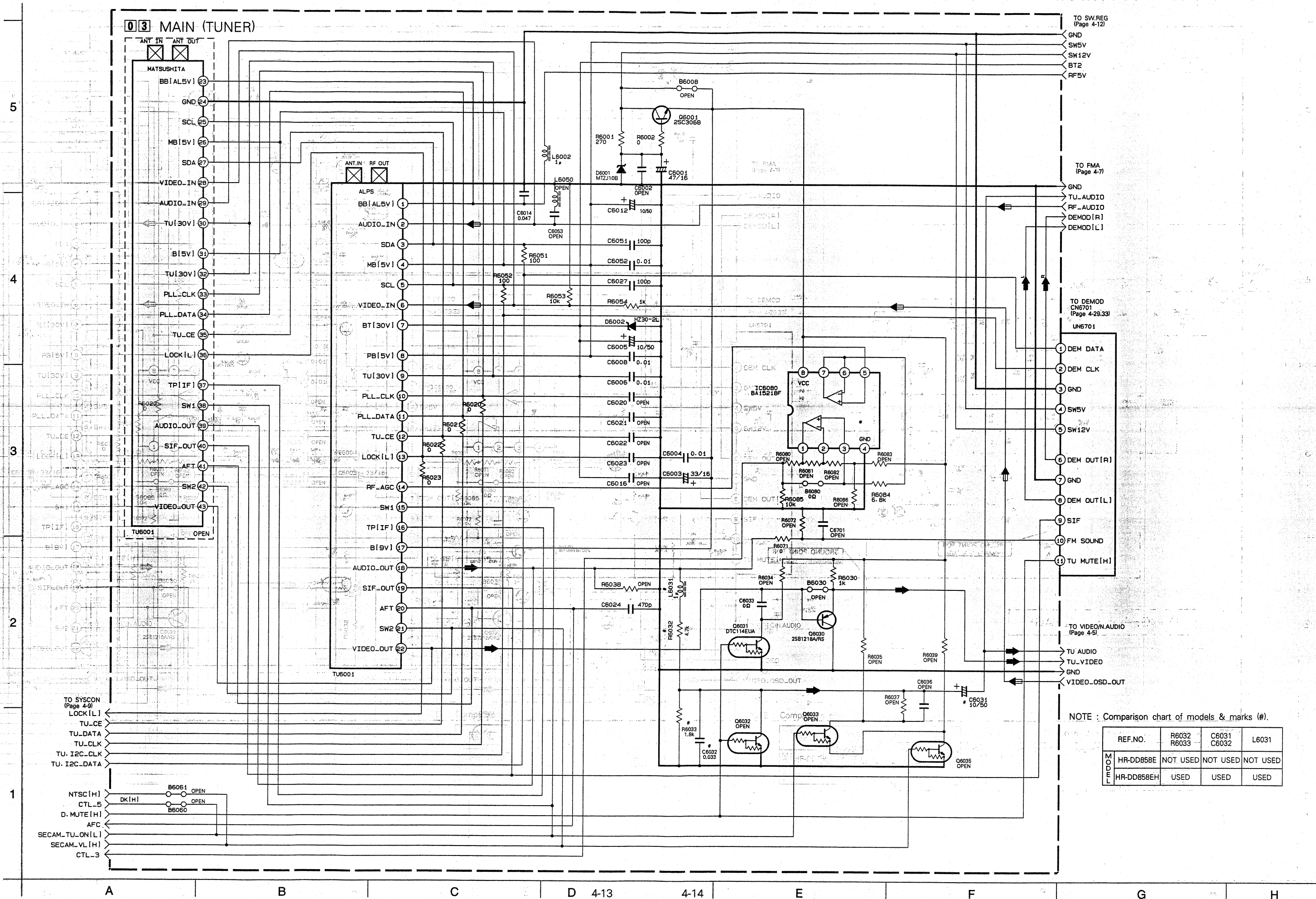
NOTE : The system control circuit of this model has an automatic recognition about the ON-OFF control of the DOCTOR SYSTEM.

4.5 SWITCHING REGULATOR SCHEMATIC DIAGRAM

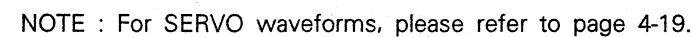
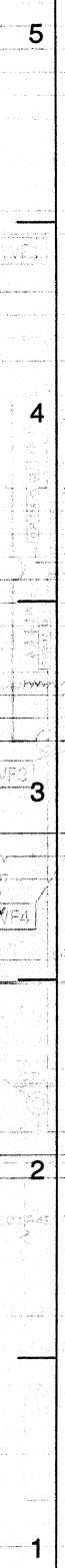
MARDAIC 3 TENHOS RELUT 6



4.6 TUNER SCHEMATIC DIAGRAM

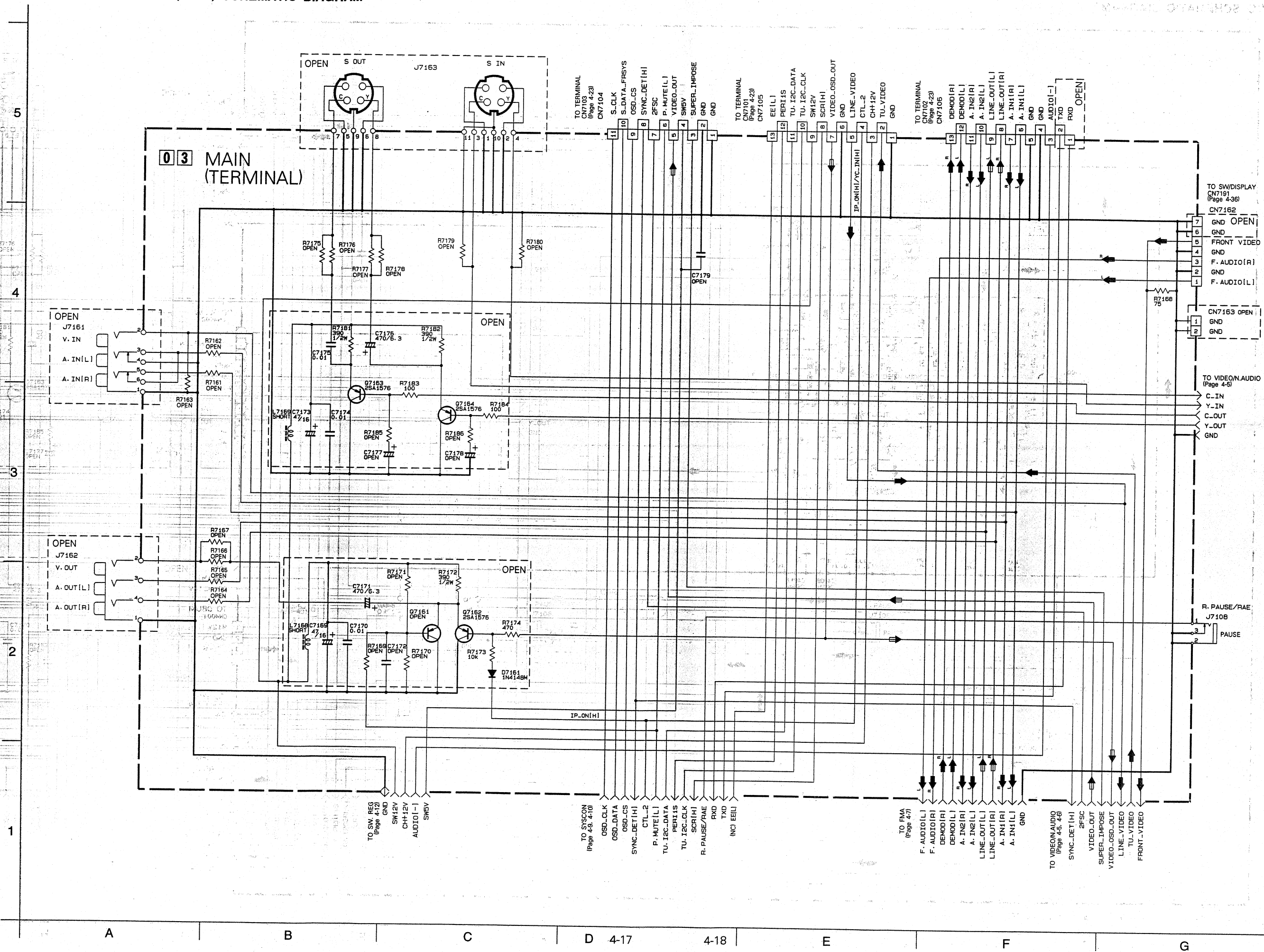


ALBANY NY AMCHSP (44) JAN 1957 7 21



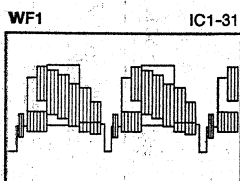
H

RECEIVED OFFICE OF THE ATTORNEY GENERAL

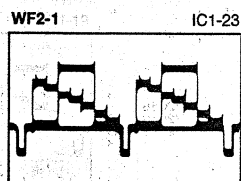


WAVEFORMS

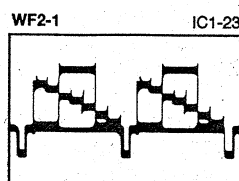
— VIDEO/N.AUDIO —



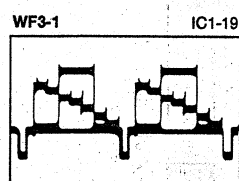
REC 1.0 Vp-p
50 mV/20 μ sec/DIV



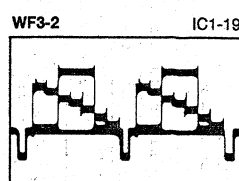
REC 0.46 Vp-p
20 mV/20 μ sec/DIV



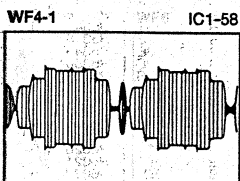
PB 0.57 Vp-p
20 mV/20 μ sec/DIV



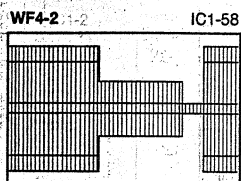
REC 0.48 Vp-p
20 mV/20 μ sec/DIV



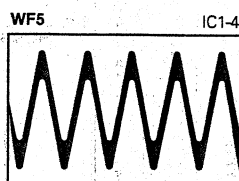
PB 0.57 Vp-p
20 mV/20 μ sec/DIV



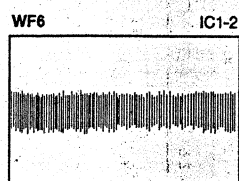
REC 0.4 Vp-p
10 mV/10 μ sec/DIV



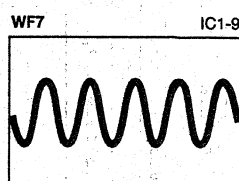
PB 0.42 Vp-p
20 mV/5 msec/DIV



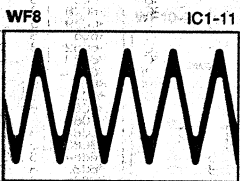
REC 0.84 Vp-p
20 mV/0.5 msec/DIV



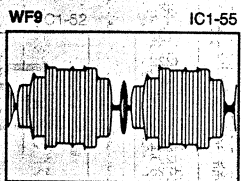
PB 2.5 mVp-p
5 mV/5 msec/DIV



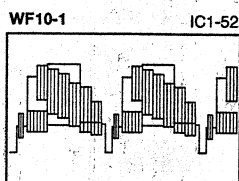
REC 0.12 Vp-p
5 mV/1 msec/DIV



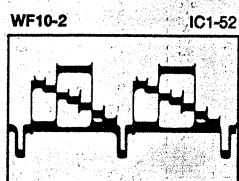
PB 0.68 Vp-p
20 mV/0.5 msec/DIV



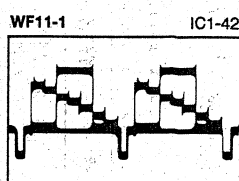
PB 0.62 Vp-p
20 mV/20 μ sec/DIV



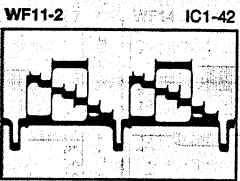
REC 2.2 Vp-p
50 mV/20 μ sec/DIV



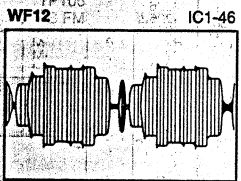
PB 2.2 Vp-p
0.1 V/20 μ sec/DIV



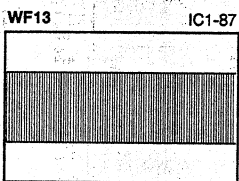
REC 0.37 Vp-p
10 mV/20 μ sec/DIV



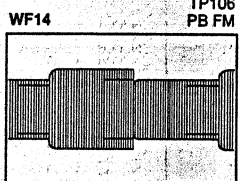
PB 0.47 Vp-p
20 mV/20 μ sec/DIV



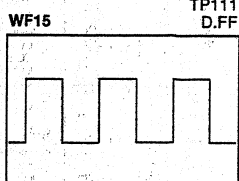
REC/PB 0.25 Vp-p
10 mV/20 μ sec/DIV



REC 1.5 Vp-p
50 mV/1 msec/DIV

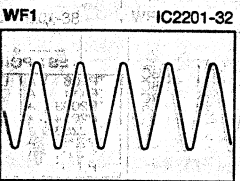


PB 0.4 Vp-p
10 mV/2 msec/DIV

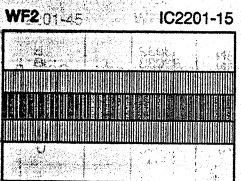


REC/PB 5.2 Vp-p
0.2 V/10 msec/DIV

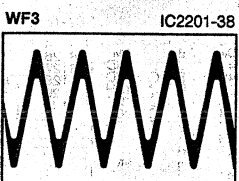
— FMA —



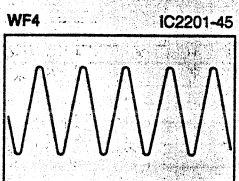
REC 0.1 Vp-p
2 mV/0.5 msec/DIV



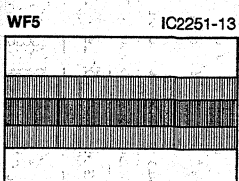
REC/PB 1.1 Vp-p
10 mV/1 msec/DIV



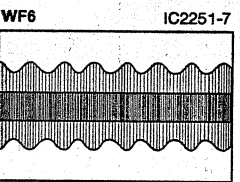
REC 0.12 Vp-p
2 mV/0.5 msec/DIV



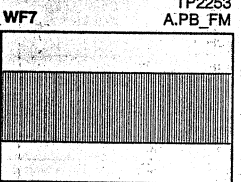
REC/PB 1.1 Vp-p
20 mV/0.5 msec/DIV



REC 0.25 Vp-p
10 mV/1 msec/DIV

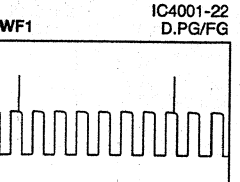


REC 2.1 Vp-p
50 mV/2 msec/DIV

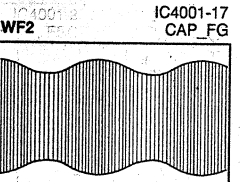


PB 1.2 Vp-p
50 mV/5 msec/DIV

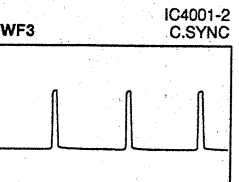
— SERVO —



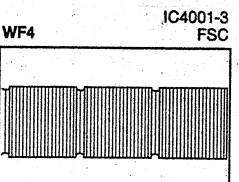
REC/PB 4.0 Vp-p
0.1 V/5 msec/DIV



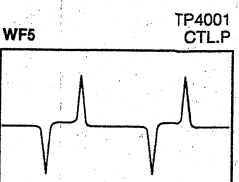
REC/PB 2.0 Vp-p
50 mV/10 msec/DIV



REC 4.8 Vp-p
0.2 V/20 μ sec/DIV



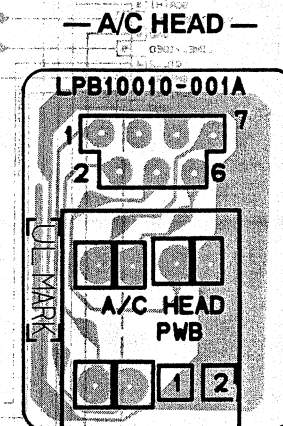
REC/PB 0.28 Vp-p
10 mV/5 msec/DIV

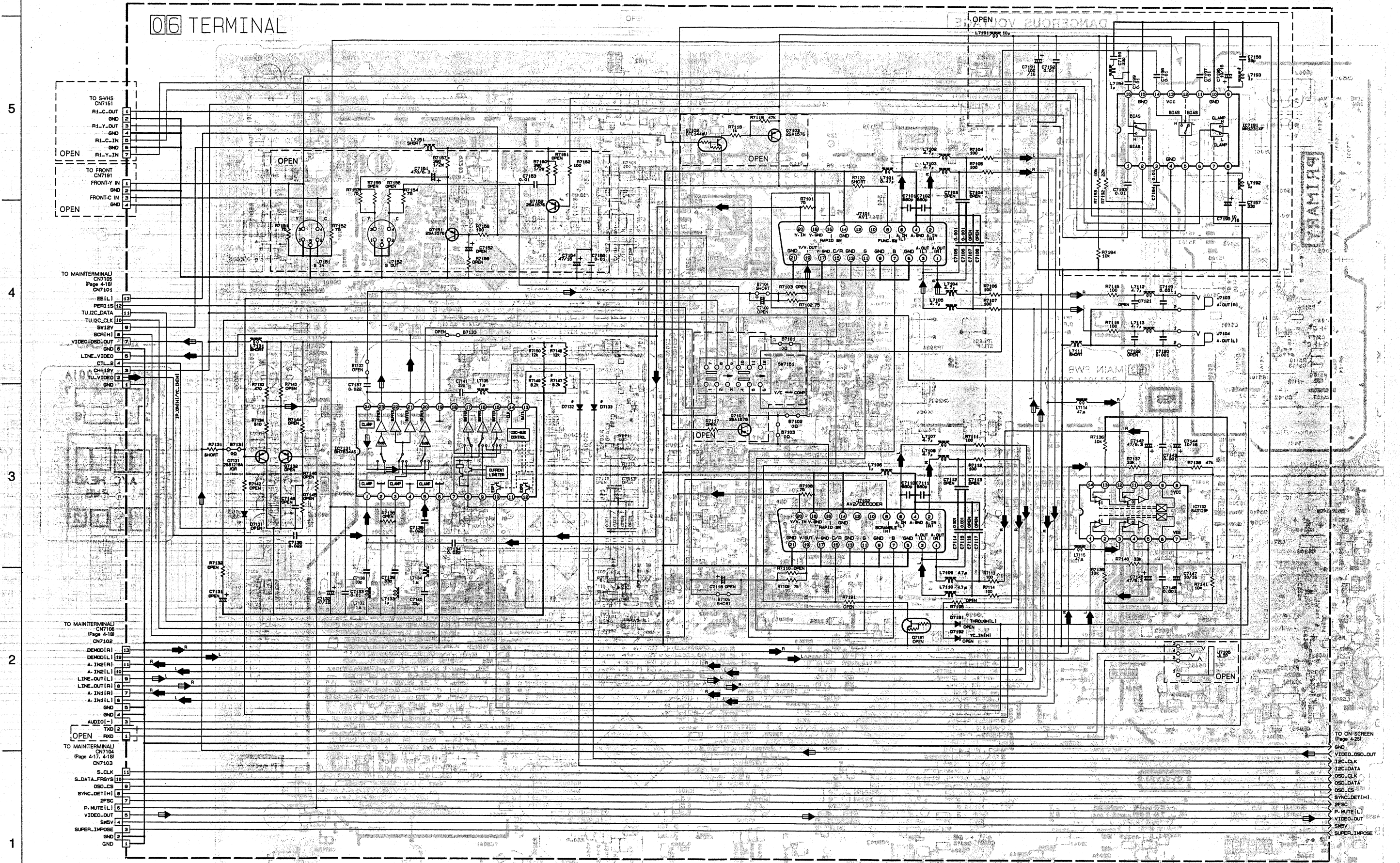


PB 3.0 Vp-p
0.1 V/10 msec/DIV

21. 7/3/44

4-20





NOTE : Comparison chart of models & marks #).

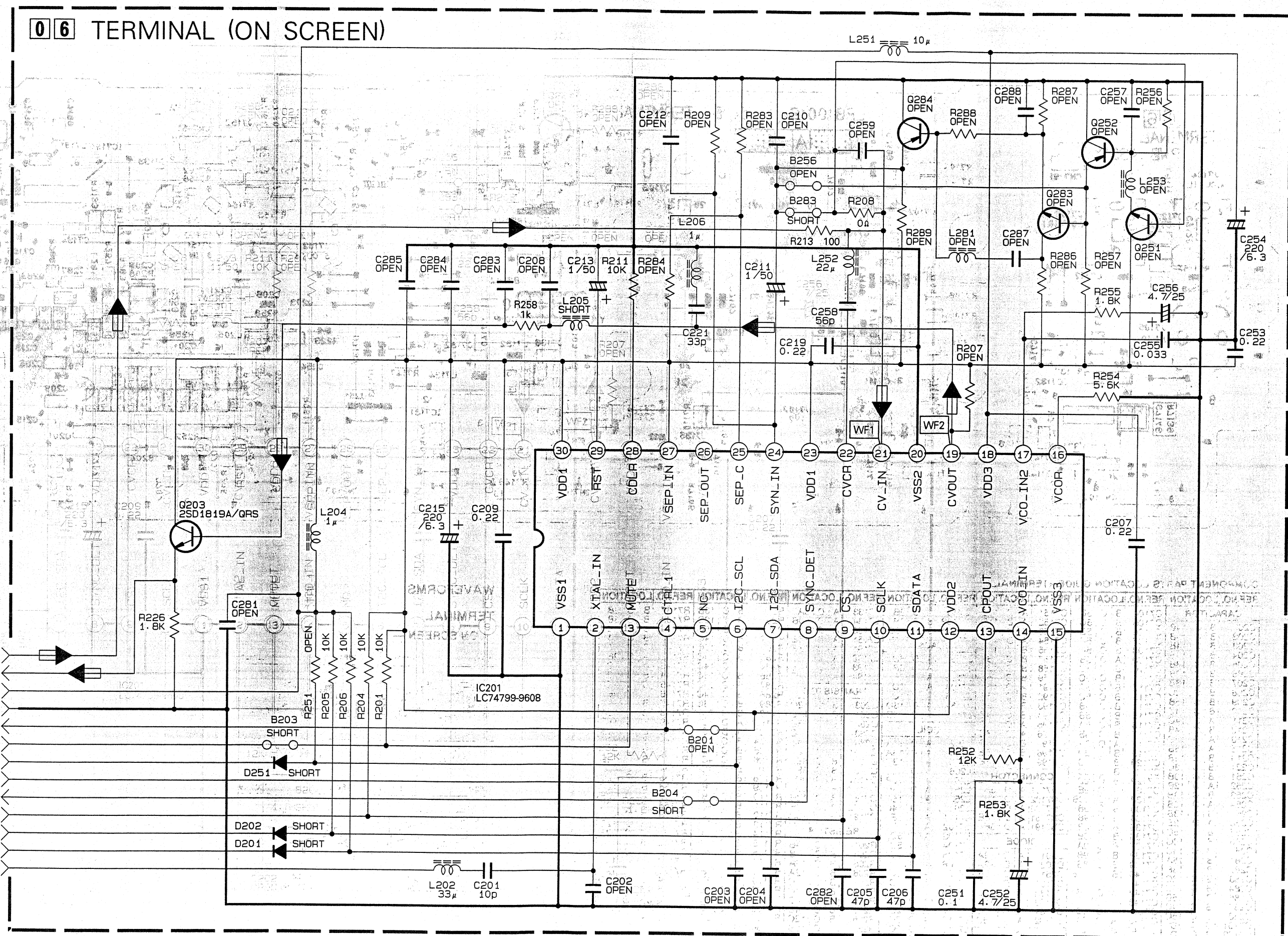
REF.NO.	D7132.D7133	R7147~R7150
HR-DD858E	1SS133	USED
HR-DD858EH	NOT USED	NOT USED

06 TERMINAL (ON SCREEN)

5
4
3
2
1

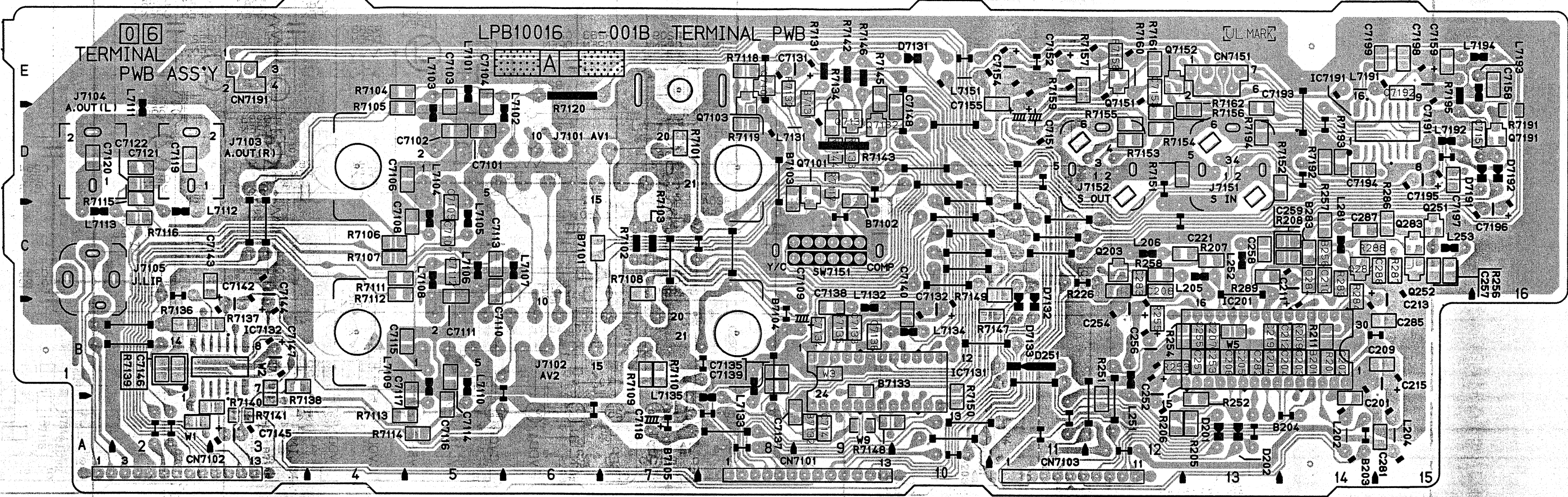
TO TERMINAL
(Page 4-24)

VIDEO_OUT
VIDEO_OSD_OUT
SW5V
GND
SUPER-IMPOSE
P.MUTE[L]
I2C_CLK
I2C_DATA
SYNC_DET[H]
OSD_CS
OSD_CLK
OSD_DATA
2FSC



NOTE : For ON SCREEN waveforms, please refer to page 4-28.

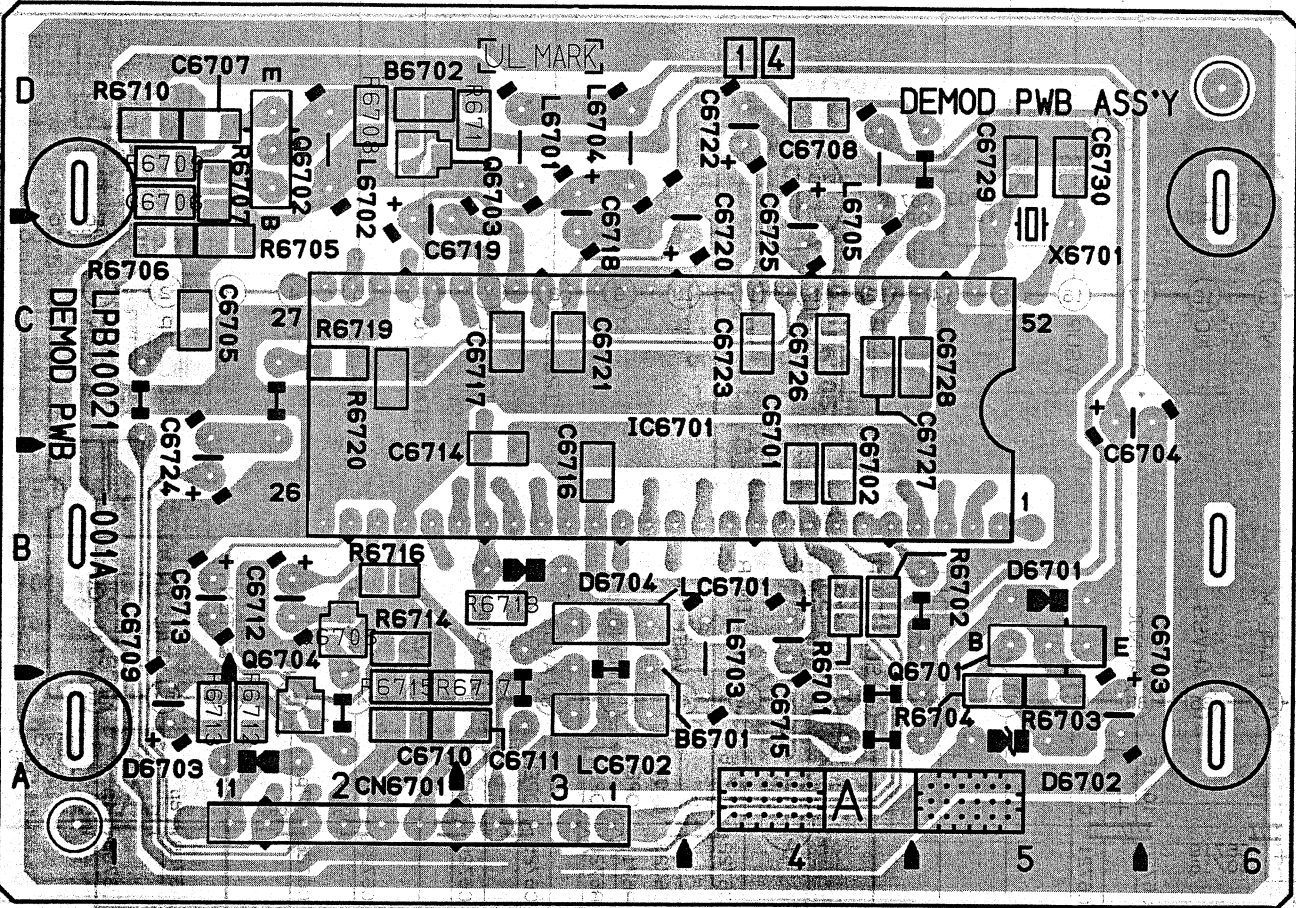
A B C D 4-25 4-26 E F G H



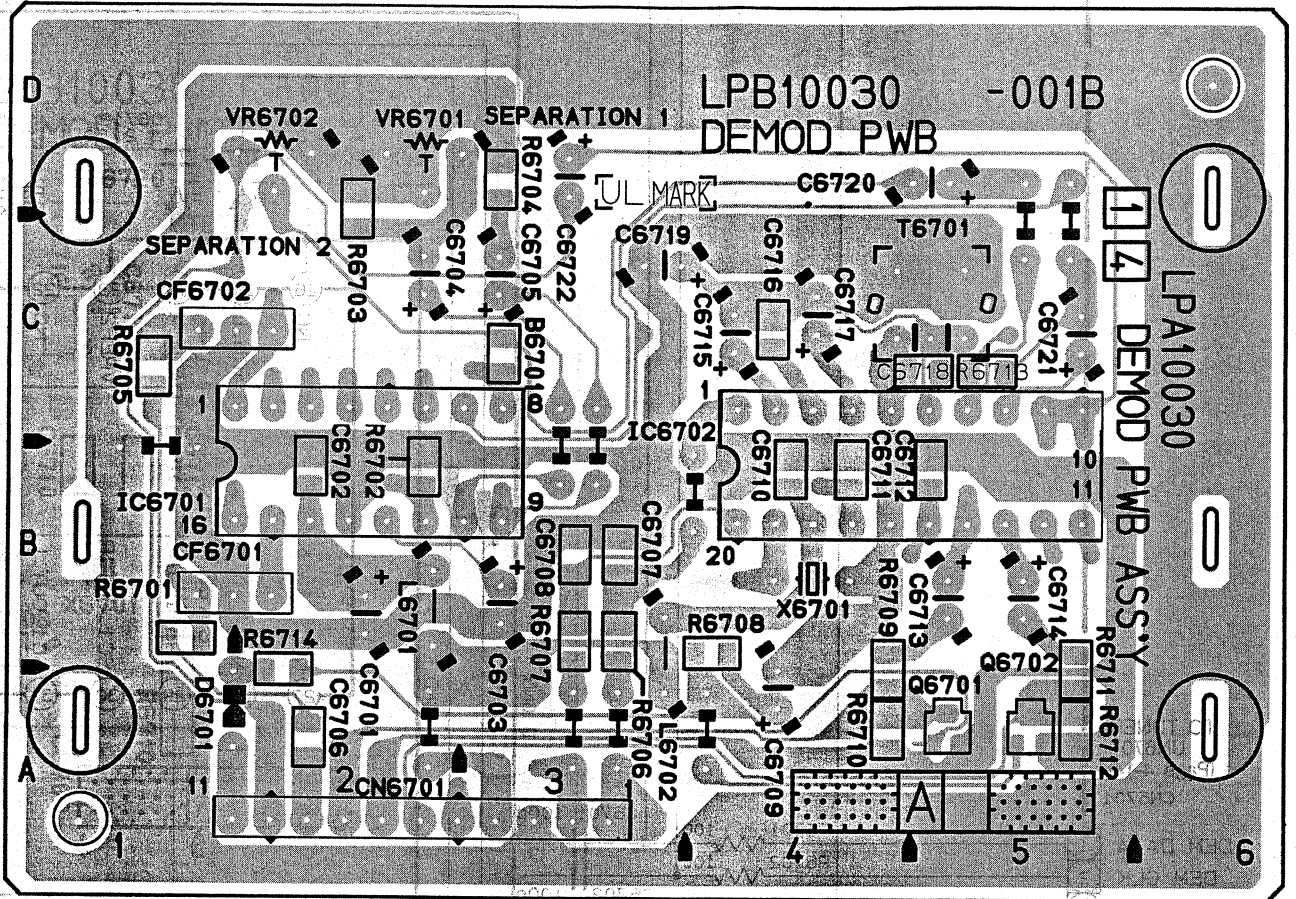
COMPONENT PARTS LOCATION GUIDE <TERMINAL>

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CAPACITOR													
C201	B C 14B	C7104	B C 5E	C7151	A D 11E	IC7131	A D 9B	L7133	A D 8A	R254	B B C 13B	R7137	B B C 3B
C202	B C 14B	C7105	B C 5C	C7152	A D 11E	IC7132	B C 3B	L7134	A D 10B	R255	B B C 12B	R7138	B B C 3B
C203	B C 14B	C7106	B C 5D	C7153	A B C 12E	IC7133	B C 15D	L7135	A D 8B	R256	B B C 15C	R7139	B B C 3B
C204	B C 14B	C7107	B C 5C	C7154	A D 11E	JACK				L7151	A D 10E	R257	B B C 14C
C205	B C 13B	C7109	B C 5C	C7155	B B C 11E	J7101	A D 6D	L7191	A D 15E	R258	B B C 12C	R7140	B B C 3A
C206	B C 13B	C7110	B C 5C	C7156	B B C 16D	J7102	A D 6B	L7192	A D 15D	R259	B B C 14C	R7141	B B C 3A
C207	B C 13B	C7111	B C 5C	C7157	B B C 15E	J7103	A D 2D	L7193	A D 16E	R260	B B C 15C	R7142	B B C 9E
C208	B C 12C	C7112	B C 5C	C7158	B B C 16D	J7104	A D 1D	L7194	A D 16E	R261	B B C 15C	R7143	B B C 9D
C209	B C 15B	C7113	B C 5C	C7159	B B C 15E	J7105	A D 1C	TRANSISTOR				R262	B B C 14C
C210	B C 14C	C7114	B C 5B	C7160	B B C 13E	J7151	A D 13D	Q203	B B C 12C	R263	B B C 13C	R7144	B B C 9E
C211	B A D 14C	C7115	B C 5B	C7161	B B C 14D	J7152	A D 12D	Q251	B B C 15C	R264	B B C 7D	R7145	B B C 11B
C212	B A B A D 14B	C7116	B C 5A	C7195	A D 16C	COIL				Q252	B B C 15C	R7101	B B C 10A
C213	B A B A D 15C	C7117	B C 5B	C7196	A D 15D	L202	A D 15A	Q283	B B C 15C	R7102	B B C 7C	R7146	B B C 11C
C215	B A B A D 15B	C7118	B C 7A	C7197	B B C 15E	L204	A D 14A	Q284	B B C 14C	R7103	B B C 7C	R7147	B B C 10B
C219	B A B A D 13B	C7119	B C 2D	C7198	B B C 15D	L205	A D 13C	Q7101	B B C 9D	R7104	B B C 4E	R7150	B B C 12D
C221	B B C 13C	C7120	B C 1D	C7199	B B C 15E	L206	A D 12C	Q7103	B B C 8E	R7105	B B C 4D	R7151	B B C 14D
C251	B B C 13B	C7121	B C 2D	CONNECTOR				Q7131	B B C 9D	R7106	B B C 4C	R7152	B B C 12D
C252	B A B A D 12B	C7122	B C 2D	CN7101	A D 8A	L251	A D 12B	Q7132	B B C 9D	R7107	B B C 7C	R7153	B B C 12D
C253	B A B A D 13B	C7131	B C 9E	CN7102	A D 11A	L252	A D 13C	Q7151	B B C 12E	R7108	B B C 7B	R7154	B B C 12D
C254	B A B A D 12B	C7132	B C 10B	CN7103	A D 1A	L253	A D 15C	Q7152	B B C 12E	R7109	B B C 7B	R7155	B B C 12D
C255	B A B A D 13B	C7133	B C 9B	CN7105	A D 13E	L281	A D 14C	Q7191	B B C 12E	R7110	B B C 7B	R7156	B B C 12E
C256	B A B A D 12B	C7134	B C 9B	CN7151	A D 3E	L7101	A D 5E	RESISTOR				R7111	B B C 4C
C257	B B C 15C	C7135	B C 8B	CN7191	A D 3E	L7102	A D 6D	R201	B B C 14B	R7112	B B C 4C	R7157	B B C 11E
C258	B B C 13C	C7136	B C 9B	DIODE				L7103	B B C 5A	R7113	B B C 5A	R7158	B B C 12E
C259	B B C 14C	C7137	B C 9A	D201	A D 13A	L7104	A D 5D	R204	B B C 13B	R7114	B B C 2D	R7160	B B C 12E
C281	B B C 15A	C7138	B C 9B	D202	A D 13A	L7105	A D 5D	R205	B B C 13A	R7115	B B C 2C	R7161	B B C 13D
C282	B B C 13B	C7139	B C 8B	D251	A D 11B	L7106	A D 5C	R206	B B C 12A	R7116	B B C 9D	R7162	B B C 16D
C283	B B C C 12C	C7140	B C 10B	D7131	A D 10E	L7107	A D 6C	R207	B B C 13C	R7117	B B C 8E	R7163	B B C 14D
C284	B B C B C 14C	C7141	B C 9A	D7132	A D 11C	L7108	A D 5B	R208	B B C 14C	R7118	B B C 8D	R7193	B B C 14D
C285	B B C C 15B	C7142	B C 3B	D7133	A D 11C	L7109	A D 5B	R209	B B C 14B	R7119	B B C 7E	R7194	B B C 13D
C287	B B C B C 14C	C7143	B C 3C	D7191	A D 16D	L7110	A D 2D	R211	B B C 14B	R7120	B B C 9E	R7195	B B C 15D
C288	B B C B C 15C	C7144	B C 3A	D7192	A D 16D	L7111	A D 2C	R226	B B C 12C	R7121	B B C 8E	SWITCH	
C7101	B B C 5D	C7145	B C 2B	IC				L7112	A D 2C	R7132	B B C 9D	SW7151	A D 9C
C7102	B B C 5D	C7146	B C 3B	L7131	A D 9D	L7132	A D 9B	R251	B B C 12B	R7133	B B C 9B		
C7103	B B C 5E	C7147	B C 3B	L7133	A D 9B			R252	B B C 13B	R7134	B B C 9D		
		C7148	B C 10E					R253	B B C 12B	R7135	B B C 2B		
										R7136	B B C 2B		

— DEMODULATOR — [HR-DD858EH]



— DEMODULATOR — [HR-DD858E]



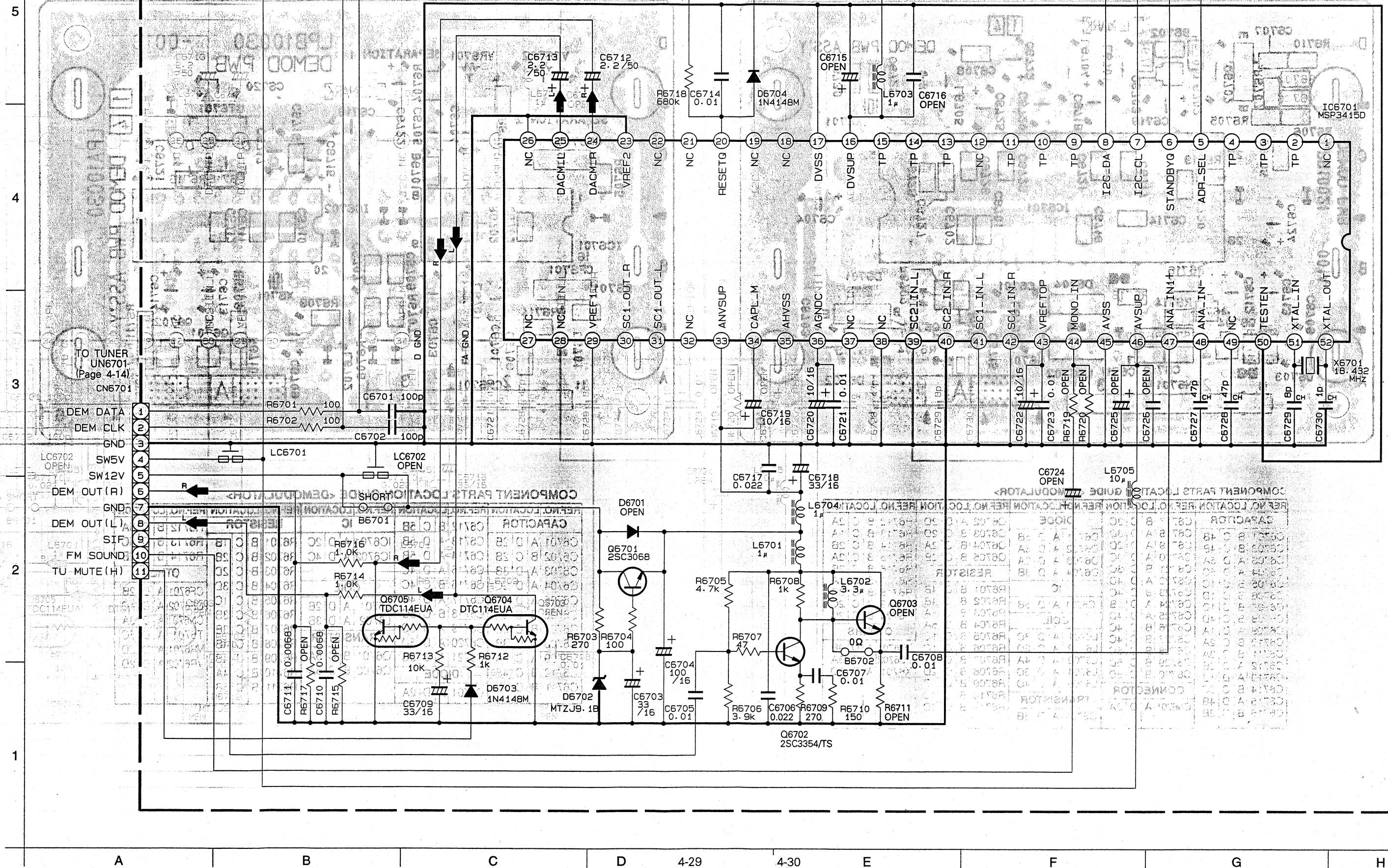
COMPONENT PARTS LOCATION GUIDE <DEMOMARK>

REF.NO.	LOCATION			REF.NO.	LOCATION			REF.NO.	LOCATION			REF.NO.	LOCATION							
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C6701	B	C	4B	C6718	A	D	3D	D6701	A	D	5B	Q6703	B	C	2D	R6713	B	C	1A	
C6702	B	C	4B	C6719	A	D	2D	D6702	A	D	5A	Q6704	B	C	2A	R6714	B	C	2B	
C6703	A	D	5A	C6720	A	D	3C	D6703	A	D	2A	Q6705	B	C	2B	R6715	B	C	2A	
C6704	A	D	5C	C6721	B	C	3C	D6704	A	D	3B	RESISTOR				R6716	B	C	2B	
C6705	B	C	1C	C6722	A	D	4D	IC				R6701	B	B	C	4B	R6717	B	C	3A
C6706	B	C	1D	C6723	B	C	4C	IC6701	A	D	5B	R6702	B	B	C	4B	R6718	B	C	3B
C6707	B	C	1D	C6724	A	D	1B	COIL				R6703	B	B	C	5A	R6719	B	C	2C
C6708	B	C	4D	C6725	A	D	4D	L6701	A	D	3D	R6704	B	B	C	5A	R6720	B	C	2C
C6709	A	D	1A	C6726	B	C	4C	L6702	A	D	2D	R6705	B	B	C	1C	OTHERS			
C6710	B	C	2A	C6727	B	C	4C	L6703	A	D	4A	R6706	B	B	C	1C	LC6701	A	D	3B
C6711	B	C	3A	C6728	B	C	5C	L6704	A	D	3D	R6707	B	B	C	1D	LC6702	A	D	3A
C6712	A	D	2B	C6729	B	C	5D	L6705	A	D	4D	R6708	B	B	C	2D	X6701	A	D	5D
C6713	A	D	1B	C6730	B	C	5D	TRANSISTOR				R6709	B	B	C	1D				
C6714	B	C	3C	CONNECTOR				TRANSISTOR				R6710	B	B	C	1D				
C6715	A	D	4B	CN6701	A	D	3A	Q6701	A	D	5B	R6711	B	B	C	3D				
C6716	B	C	3B																	

COMPONENT PARTS LOCATION GUIDE <DEMOMARK>

REF.NO.	LOCATION			REF.NO.	LOCATION			REF.NO.	LOCATION			REF.NO.	LOCATION						
CAPACITOR				C6712 C6713 C6714 C6715 C6716 C6717 C6718 C6719 C6720 C6721	B A A A B A B A A A	C D D D C D C D D D	5B 5B 5B 4C 4C 4C 5C 3C 5D 5C	IC				RESISTOR							
C6701	A	D	2B					IC6701	A	D	2C	R6701	B	C	1B	R6712	B	C	5A
C6702	B	C	2B					IC6702	A	D	4C	R6702	B	C	2B	R6713	B	C	5C
C6703	A	D	3B									R6703	B	C	2D	R6714	B	C	2B
C6704	A	D	2C					COIL				R6704	B	C	3D	OTHER			
C6705	A	D	3C					L6701	A	D	2B	R6705	B	C	1C	CF6701	A	D	2B
C6706	B	C	2A					L6702	A	D	3B	R6706	B	C	3B	CF6702	A	D	1C
C6707	B	C	3B					TRANSISTOR				R6707	B	C	3B	CN6701	A	D	3A
C6708	B	C	3B					Q6701	B	C	5A	R6708	B	C	4B	T6701	A	D	5C
C6709	A	D	4A					Q6702	B	C	5A	R6709	B	C	4B	VR6701	A	D	2D
C6710	B	C	4B	DIODE				R6710	B	C	4A	VR6702	A	D	2D				
C6711	B	C	4B	D6701	A	D	2A	R6711	B	C	5B								

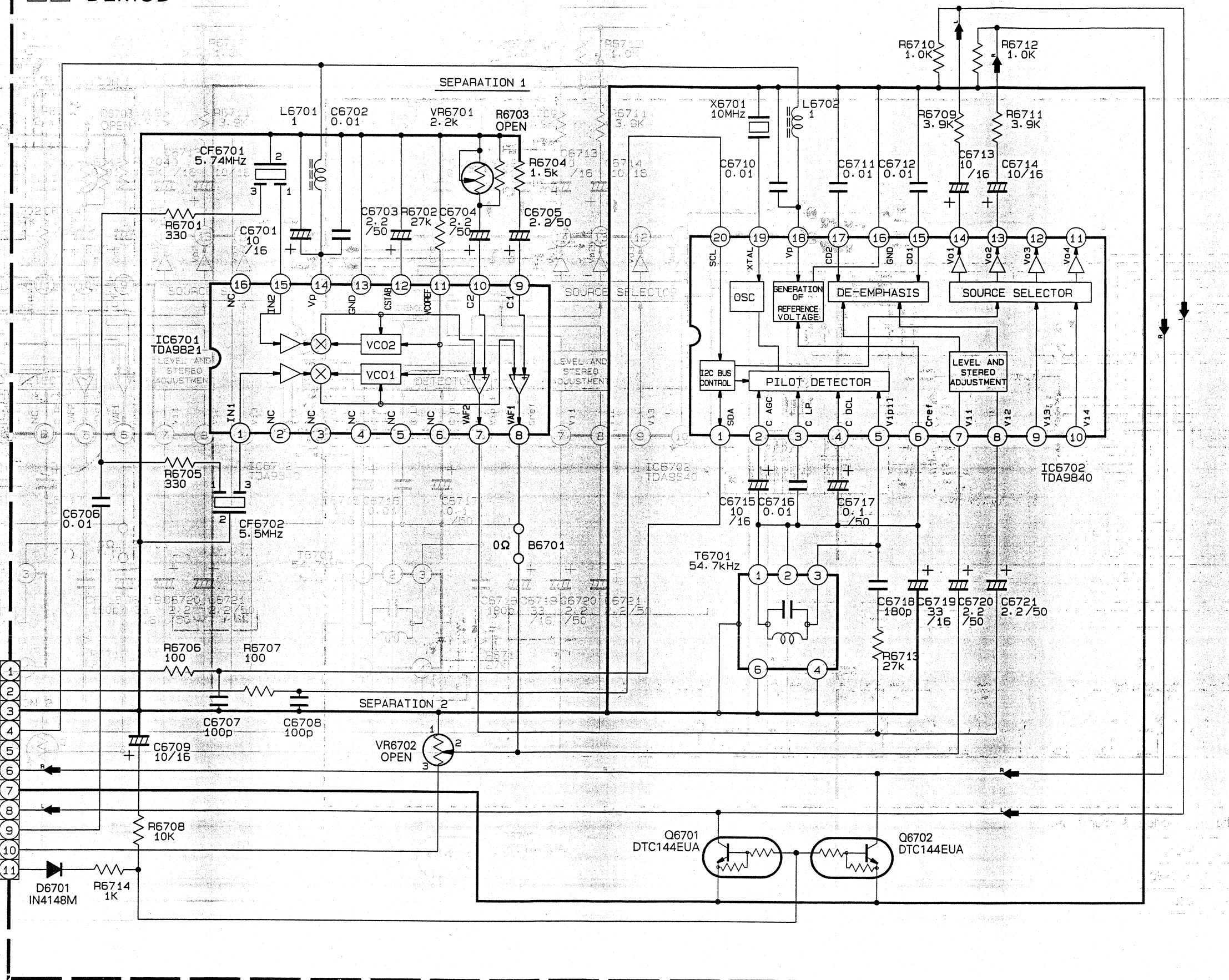
14 DEMOD



14 DEMOD

TO TUNER
UN6701
(Page 4-14)

CN6701
DEM DATA 1
DEM CLK 2
GND 3
SW5V 4
SW12V(NC) 5
DEM OUT(R) 6
GND 7
DEM OUT(L) 8
SIF 9
FM SOUND 10
TU MUTE(H) 11



A

B

C

D

4-33

4-34

E

F

G

H

5

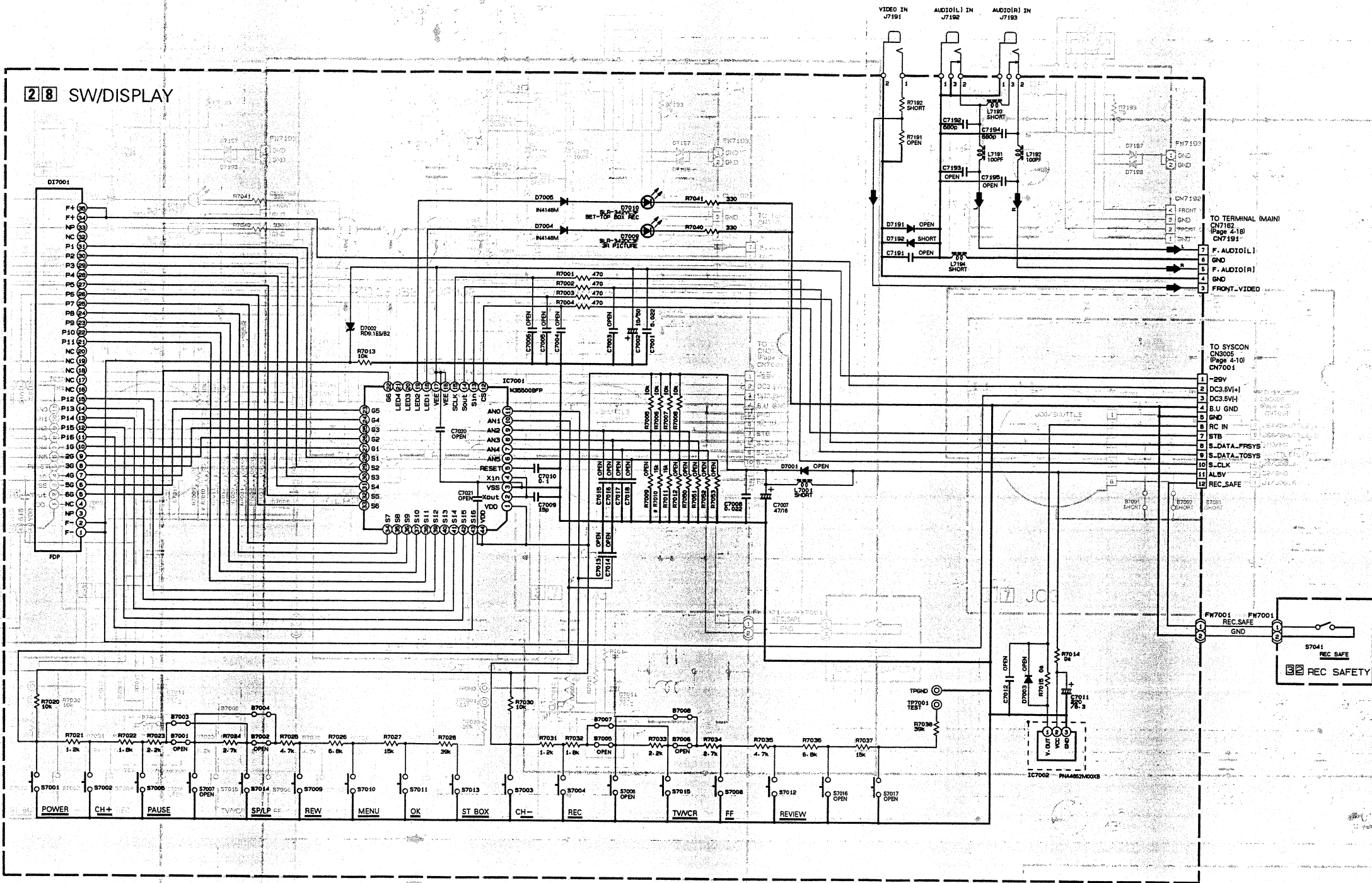
4

3

2

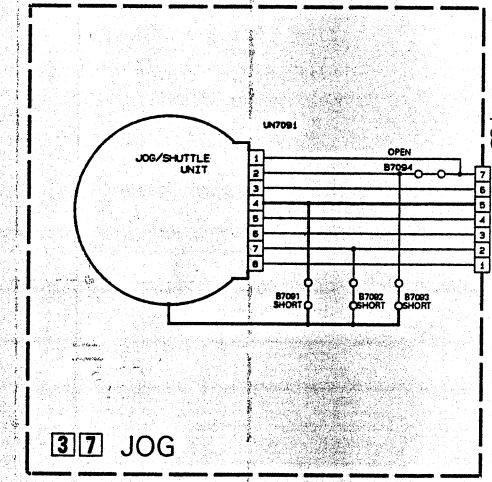
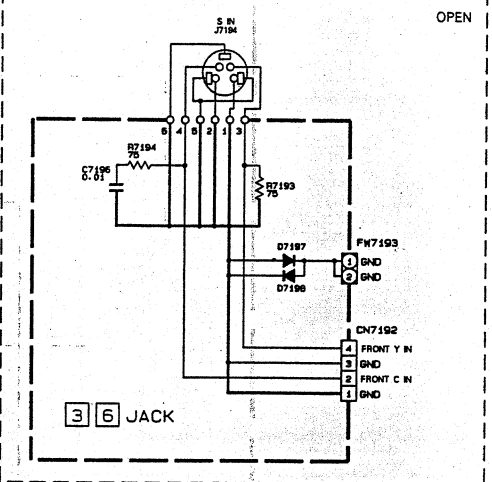
1

2 8 SW/DISPLAY



NOTE : Comparison chart of models & marks (#).

REF.NO.	R7010
HR-DD858E	NOT USED
HR-DD858EH	USED



A

B

C

D 4-35

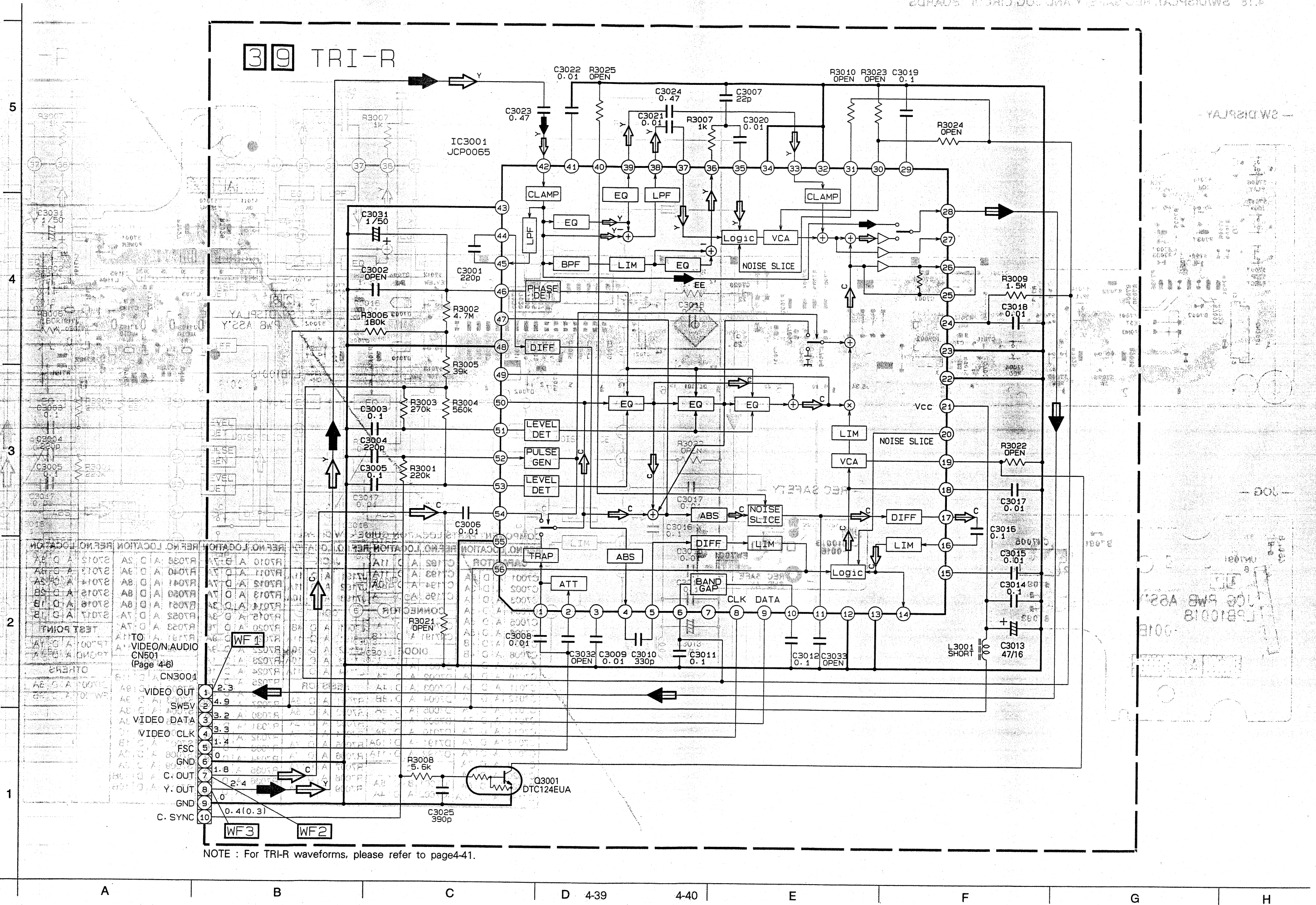
4-36

E

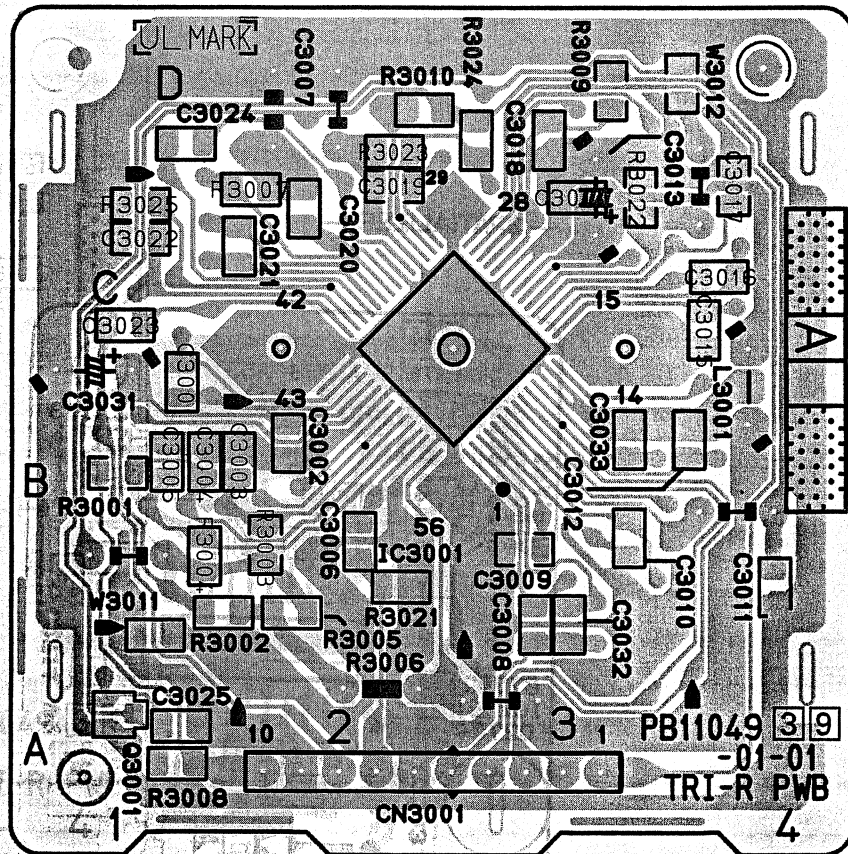
F

G

H



4.20 TRI-R CIRCUIT BOARD AND WAVEFORMS



COMPONENT PARTS LOCATION GUIDE < TRI-R >

REF.NO. LOCATION REF.NO. LOCATION

CAPACITOR CONNECTOR

C3001 B C 1C CN3001 A D 3A

C3002 B C 2B IC

C3003 B C 2B IC

C3004 B C 1B IC3001 B C 2C

C3005 B C 1B IC

C3006 B C 2B COIL

C3007 A D 2D L3001 A D 4B

C3008 B C 3B TRANSISTOR

C3009 B C 3B Q3001 B C 1A

C3010 B C 3B RESISTOR

C3011 B C 4B R3001 B C 1B

C3012 B C 4B R3002 B C 1B

C3013 A D 3C R3003 B C 2B

C3014 A D 3C R3004 B C 1B

C3015 B C 4C R3005 B C 2B

C3016 B C 4C R3006 A D 2A

C3017 B C 3D R3007 B C 2C

C3018 B C 3D R3008 B C 1A

C3019 B C 2C R3009 B C 3D

C3020 B C 2C R3010 B C 2D

C3021 B C 2C R3021 B C 2B

C3022 B C 1C R3022 B C 3C

C3023 B C 1C R3023 B C 2D

C3024 B C 1D R3024 B C 3D

C3025 B C 1A R3025 B C 1C

C3031 A D 1C

C3032 B C 3B

C3033 B C 3B

WAVEFORMS

— TRI-R —

VIDEO OUT

WF1 2B CN3001-1

WF2 C.OUT CN3001-7

REC/PB 2.1 VP-P

0.1 V/20 μ sec/DIV

Y.OUT CN3001-8

WF3-1

REC 2.15 VP-P

0.1 V/20 μ sec/DIV

Y.OUT CN3001-8

WF3-2

PB 0.6 VP-P

20 mV/20 μ sec/DIV

Y.OUT CN3001-8

WF3-2

PB 2.15 VP-P

0.1 V/20 μ sec/DIV

Y.OUT CN3001-8

WF3-2

COMPONENT PARTS LOCATION GUIDE < TRI-R >

REF.NO. LOCATION REF.NO. LOCATION

CAPACITOR CONNECTOR

C3001 B C 1C CN3001 A D 3A

C3002 B C 2B IC

C3003 B C 2B IC

C3004 B C 1B IC3001 B C 2C

C3005 B C 1B IC

C3006 B C 2B COIL

C3007 A D 2D L3001 A D 4B

C3008 B C 3B TRANSISTOR

C3009 B C 3B Q3001 B C 1A

C3010 B C 3B RESISTOR

C3011 B C 4B R3001 B C 1B

C3012 B C 4B R3002 B C 1B

C3013 A D 3C R3003 B C 2B

C3014 A D 3C R3004 B C 1B

C3015 B C 4C R3005 B C 2B

C3016 B C 4C R3006 A D 2A

C3017 B C 3D R3007 B C 2C

C3018 B C 3D R3008 B C 1A

C3019 B C 2C R3009 B C 3D

C3020 B C 2C R3010 B C 2D

C3021 B C 2C R3021 B C 2B

C3022 B C 1C R3022 B C 3C

C3023 B C 1C R3023 B C 2D

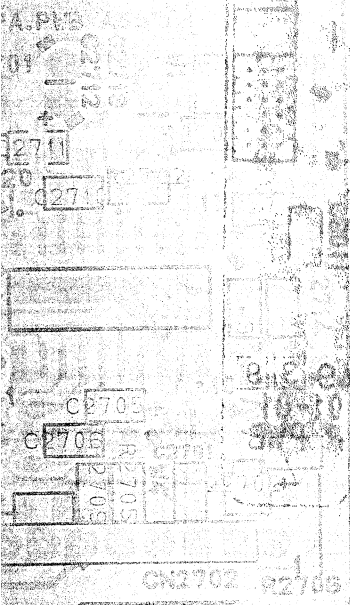
C3024 B C 1D R3024 B C 3D

C3025 B C 1A R3025 B C 1C

C3031 A D 1C

C3032 B C 3B

C3033 B C 3B

[illegible]

THE

1932
1933

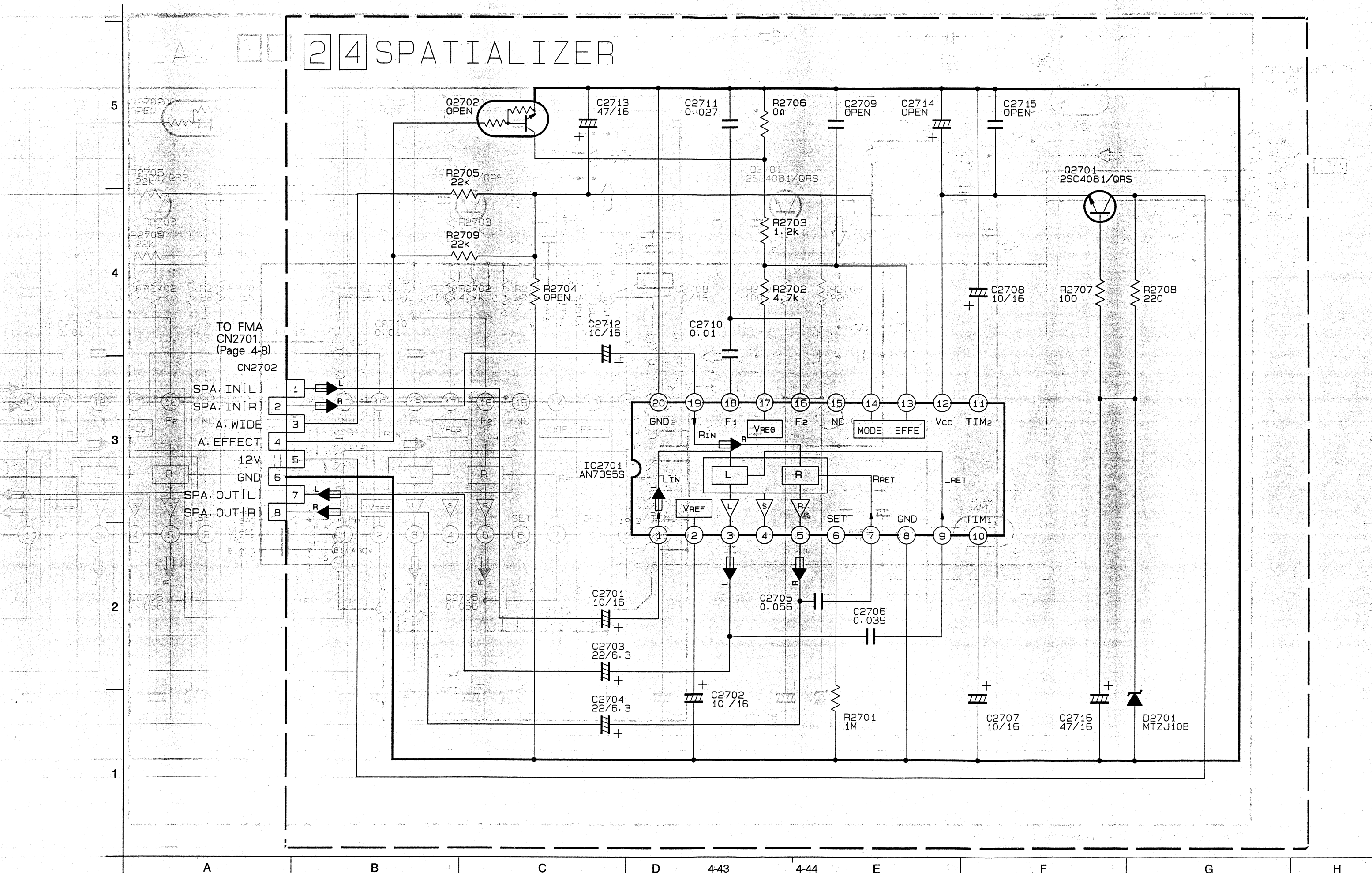
1944

1428

G... ..

4.22 SPATIALIZER SCHEMATIC DIAGRAM

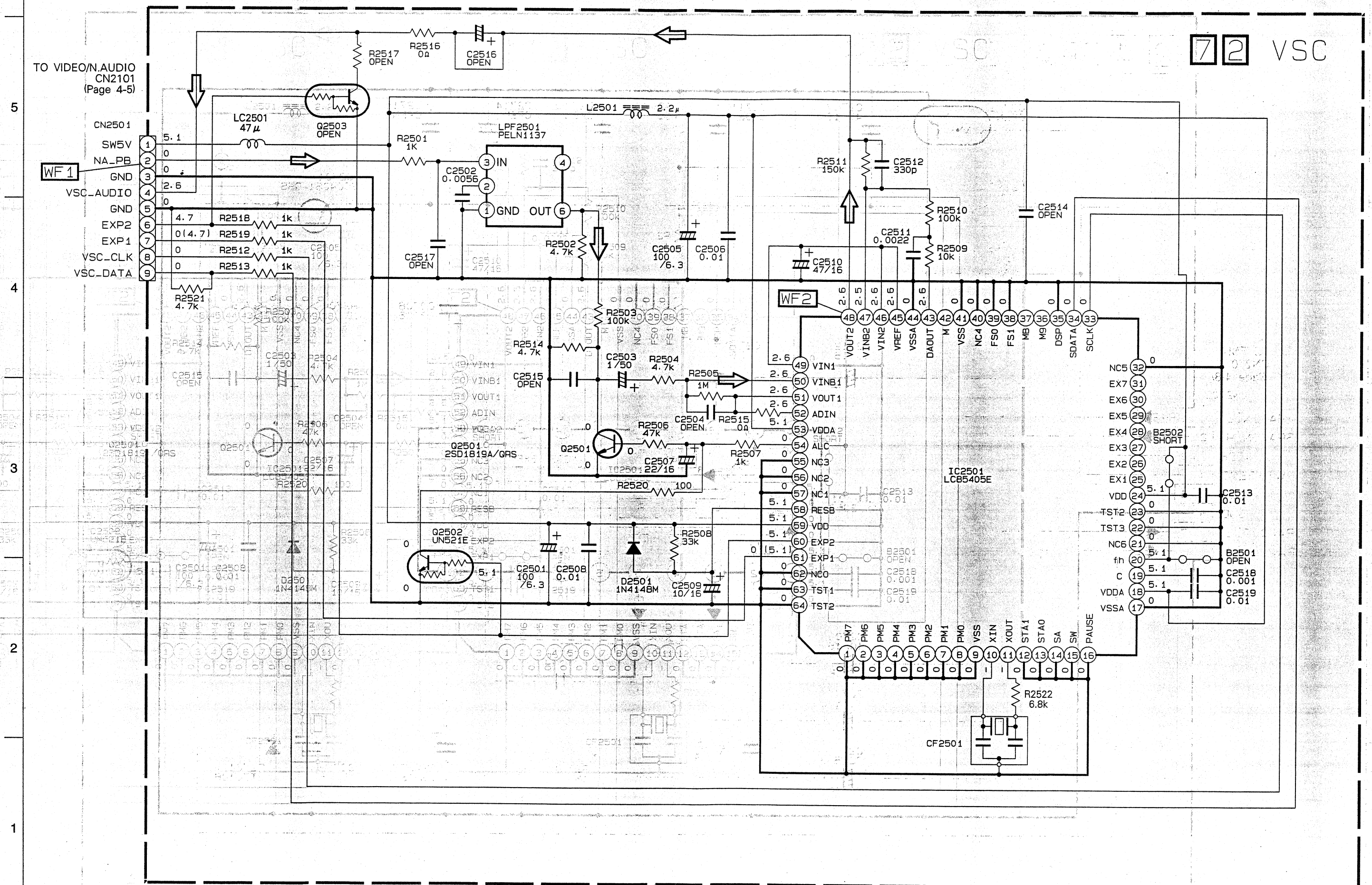
MAPDAK SPATIALIZER 02V 02A



4.23 VSC SCHEMATIC DIAGRAM

MAPAGE SCHEMATIC DIAGRAM

72 VSC

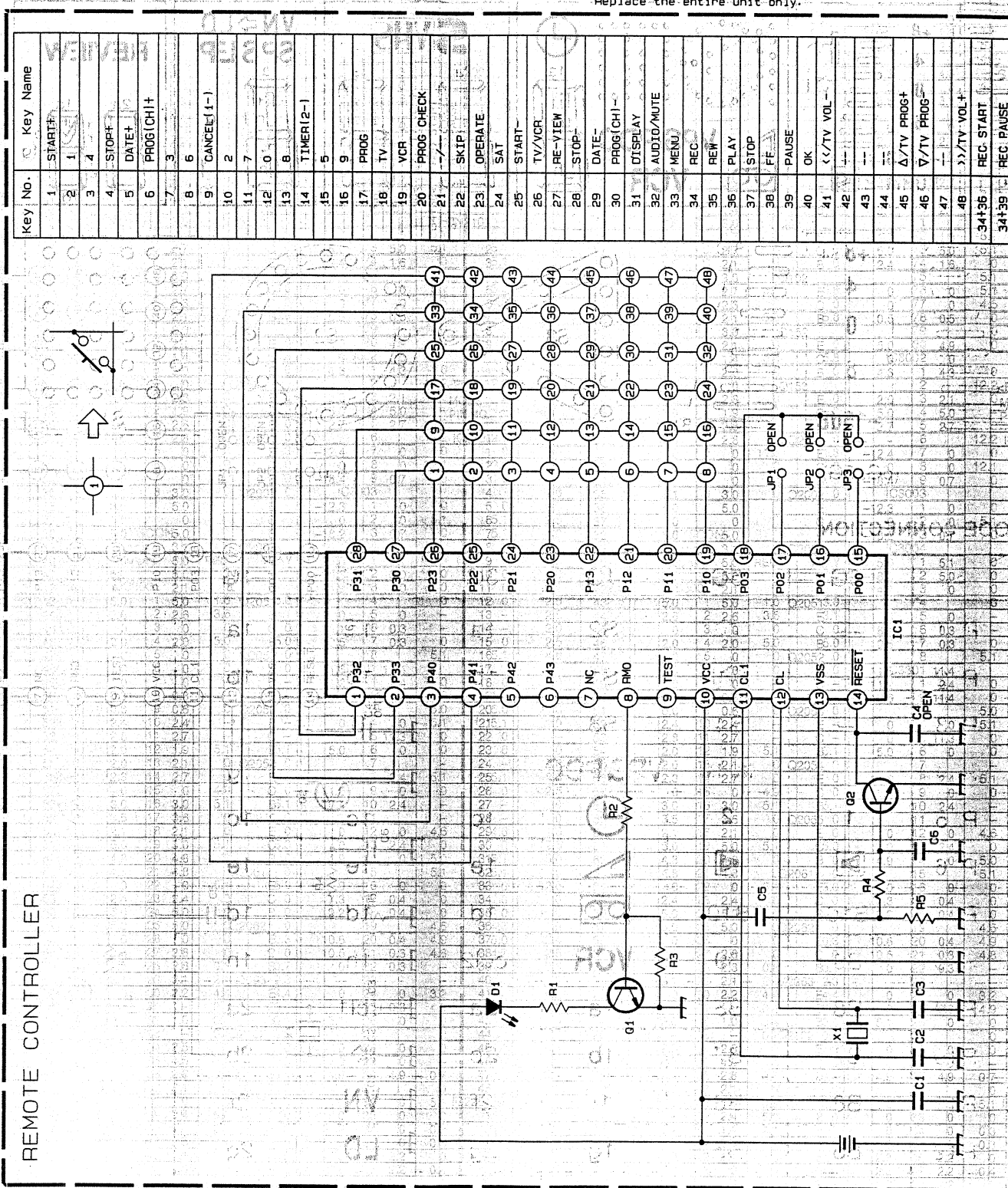


NOTE : For VSC waveforms, please refer to page 4-47.

A B C D 4-45 4-46 E F G H

4.26 REMOTE CONTROL SCHEMATIC DIAGRAM

NOTES:
 1. All parts shown in this schematic are critical for safety.
 2. This schematic is only for reference.
 Avoid replacing individual parts.
 Replace the entire unit only.



4.27 VOLTAGE CHARTS

<VIDEO/AUDIO>

MODE PIN NO.	REC	PLAY
IC1		
1	2.5	2.5
2	2.5	2.4
3	0	0
4	2.2	2.4
5	0	0
6	0.4	0.9
7	2.5	2.5
8	0	0
9	2.4	2.5
10	2.4	2.4
11	2.4	2.4
12	5.0	5.0
13	1.9	1.4
14	1.9	1.4
15	2.6	3.0
16	1.5	0.7
17	2.6	2.7
18	2.3	2.1
19	3.0	3.0
20	2.7	2.7
21	2.2	2.3
22	1.9	2.1
23	3.0	3.0
24	2.1	2.1
25	1.4	1.4
26	2.1	2.0
27	0	0
28	2.8	2.8
29	1.9	1.9
30	2.6	2.8
31	2.8	2.8
32	0	0
33	0	0
34	0	0
35	3.1	3.0
36	5.0	5.0
37	0	0
38	5.0	5.0
39	3.1	3.1
40	5.0	5.0
41	5.0	5.0
42	2.0	2.1
43	5.0	5.0
44	2.6	2.6
45	0	0
46	2.0	2.0
47	0	0
48	0	0
49	0	0
50	0.3	0.3
51	0.6	0.6
52	2.4	2.4
53	2.8	2.7
54	2.0	1.9
55	2.0	2.1
56	2.3	2.7
57	0	0
58	3.0	3.0
59	3.5	3.6
60	2.1	2.1
61	5.0	5.0
62	4.8	4.8
63	4.8	4.8
64	0	0
65	2.4	2.4
66	5.0	5.0
67	5.0	5.0
68	0	0
69	2.8	2.8
70	2.8	2.8
71	2.1	2.1
72	0	2.2
73	0	0
74	2.6	1.0
75	0	0
76	2.5	2.5
77	4.8	4.5
78	2.7	2.8
79	4.3	2.1
80	0	0
81	0	2.4
82	1.2	1.1
83	2.5	2.5
84	0	1.1
85	0	0
86	2.4	2.3
87	2.2	2.2
88	2.2	2.2
89	0	2.2
90	5.0	5.0
91	0	0
92	0	0
93	0	0
94	0	0
95	2.8	2.8
96	5.0	5.1
97	0	0

MODE PIN NO.	REC	PLAY
98	5.0	5.0
99	0.6	2.6
100	2.6	2.5
Q1		
E	4.3	4.3
C	0	0
B	3.6	3.6
Q2		
E	0	0
C	2.1	2.1
B	0	0
Q6		
E	2.7	2.7
C	0	0
B	2.1	2.1
Q38		
E	1.7	1.0
C	5.0	5.0
B	2.4	1.6
Q102		
E	0	0
C	0	0
B	0.5	0.5
Q152		
E	5.0	4.9
C	0	0
B	4.3	4.3
Q153		
E	2.0	2.1
C	5.0	5.0
B	2.7	2.7
Q2001		
E	-12.4	0
C	0	0
B	-18.4	0.7
Q2002		
E	-12.3	0
C	0	0
B	-18.2	0.7
Q2003		
E	5.0	5.1
C	-18.3	5.0
B	4.9	0
Q2051		
E	0	0
C	8.1	0.3
B	0.5	0.3
Q2052		
E	11.3	11.4
C	11.2	2.4
B	10.6	11.4
Q2053		
E	0	0
C	0	11.3
B	5.0	0
Q2054		
E	11.2	2.4
C	11.0	0
B	10.4	2.4
Q2055		
E	0	0
C	0	2.4
B	4.9	0
Q2061		
E	0	0
C	7.3	0.4
B	0.2	0.4
Q2062		
E	10.6	0.4
C	10.5	0.3
B	0	0.3
Q2063		
E	0	0
C	0	0.3
B	5.1	0
Q2102		
E	0	0
C	0	0
B	4.9	4.9
CN1		
1	0	0
2	0	0
3	0	0
4	0	0
5	2.3	2.2
6	2.3	2.2
7	2.2	2.2
8	2.2	2.2
9	4.4	0
10	0	0
11	4.4	0
CN501		
1	2.1	2.2
2	5.0	5.1
3	5.1	5.1
4	5.1	5.1
5	4.2	4.3
6	0	0

MODE PIN NO.	REC	PLAY
7	2.0	2.1
8	1.8	1.8
9	0	0
10	0.4	0.3
CN2001		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	1.7	2.5
7	2.0	2.5
CN2002		
1	0	0
2	0	0
CN2101		
1	5.1	5.1
2	0	0
3	0	0
4	2.5	2.5
5	0	0
6	5.0	5.0
7	4.9	4.9
8	0	0
9	0	0

<FMA>

MODE PIN NO.	REC	PLAY
IC2201		
1	0	0
2	0	0
3	2.5	2.5
4	0	0
5	0	0
6	2.5	2.5
7	0	0
8	2.5	2.5
9	1.5	1.5
10	0	0
11	2.5	2.5
12	2.5	2.5
13	2.5	2.4
14	2.0	2.0
15	2.5	0
16	4.8	4.8
17	4.9	4.8
18	0	2.8
19	0	0
20	0	0
21	0	2.7
22	0	0
23	0	0
24	2.0	2.1
25	2.5	2.4
26	2.5	2.5
27	0	2.5
28	0	0
29	1.6	1.5
30	2.6	2.5
31	5.0	5.0
32	0	0
33	2.5	2.5
34	0	0
35	0	0
36	0	0
37	2.4	2.5
38	2.5	2.5
39	9.3	9.4
40	0	0.5
41	4.3	4.3
42	0	0
43	0	0
44	0	0
45	4.3	4.3
46	4.6	4.4
47	3.6	3.1
48	1.0	3.0
IC2251		
1	0	0
2	4.4	0
3	0.5	0.6
4	0	0
5	0.6	0.6
6	4.4	0
7	0	0
8	2.5	2.5
9	0	0
10	5.0	5.0
11	3.0	3.1
12	0	0
13	1.9	0.9
14	1.9	1.9
15	0	0
16	4.5	0.9
Q2251		

MODE PIN NO.	REC	PLAY
E	4.4	0
C	4.5	0.9
B	0.5	0.4
Q2254		
E	0	0
C	0	0
B	5.0	5.0
Q2255		
E	5.0	5.1
C	5.0	5.0
B	0	0
Q2711		
E	0	0
C	0	0
B	-0.1	0
Q2712		
E	0	0
C	0	0
B	0	0
Q2713		
E	5.8	5.8
C	0	0
B	5.8	5.8
Q2714		
E	0	0
C	5.8	5.8
B	0	0
CN2701		
1	0	0
2	0	0
3	0	0
4	0	0
5	11.3	11.3
6	0	0
7	0	0
8	0	0

<SYSCON>

MODE PIN NO.	REC	PLAY
IC3001		
1	1.0	3.0
2	3.6	3.1
3	0	0
4	5.0	5.0
5	0	0
6	0	0
7	0	0
8	5.1	5.1
9	0	0
10	0	0
11	0	0
12	5.1	5.1
13	0	0
14	0	0
15	4.9	0
16	5.1	5.1
17	0	0
18	0	0
19	5.1	5.0
20	0	0
21	0	0
22	5.1	5.0
23	0	0
24	0	0
25	0	0
26	0	0.3
27	0	0
28	0.8	0.7
29	2.1	2.3
30	4.4	4.4
31	0.4	0.4
32	0.4	0.4
33	0.7	0.9
34	0	0
35	0.4	0
36	0.3	0.4
37	0	0
38	0.3	0.3
39	5.0	0
40	2.1	0
41	5.1	5.0
42	0	0
43	0	0
44	5.0	5.0
45	0	0
46	0	0
47	0	0
48	0	0
49	0	0
50	5.1	5.0
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0

MODE PIN NO.	REC	PLAY
56	0	0
57	1.3	1.2
58	5.1	5.1
59	4.7	4.6
60	0	0
61	4.5	4.6
62	0	0
63	5.1	5.1
64	0	0
65	0	0
66	0	0
67	0	0
68	0	0
69	3.3	0
70	0	0
71	0	0
72	5.1	5.1
73	5.1	5.1
74	0	5.1
75	5.1	5.1
76	5.1	5.1
77	4.5	4.5
78	0	0
79	0	0
80	0	0
IC3002		
1	0	0
2	12.2	12.2
3	0	0
4	0	0
5	0	0
6	12.2	12.2
7	0	0
8	12.1	12.2
9	0	0
IC3003		
1	0	0
2	5.1	5.1
3	0	5.1
IC3004		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	5.1	5.1
9	0	0
10	0	1.2
11	0	0
12	4.6	4.6
13	0	0
14	5.0	5.1
15	5.1	5.1
16	0	0
17	0	0
18	0	0
19	4.6	4.7
20	4.9	5.0
21	4.8	4.7
22	0	0
23	0	0
24	3.2	0
25	4.9	4.9
26	0	0
27	0	0
28	0	0
29	0	0
30	0.7	0.8
31	0	0
32	5.1	5.1

MODE PIN NO.	REC	PLAY
50	0	0
51	0	0
52	5.1	5.1
53	0	0
54	0	0
55	0	0
56	0	0
57	5.1	5.1
58	0	0
59	5.1	5.1
60	0	0
61	0	0
62	0	0
63	5.1	5.1
64	0	0
65	0	0
66	0	0
67	5.1	5.1
68	5.1	5.0
69	0	0
70	5.1	5.1
71	5.1	5.1
72	5.1	5.1
73	5.1	5.1
74	2.7	2.8
75	1.5	1.5
76	2.5	2.5
77	0	0
78	0	0
79	0	0
80	4.3	4.3
IC3302	0	0
1	0	0
2	12.3	12.3
3	0.6	0.7
4	0	0
5	0	0
6	12.3	12.3
7	0.6	0.7
8	3.5	3.5
9	0	0
Q3001	0	0
E	0	0
C	4.6	4.7
B	0	0
Q3002	0	0
E	0	0
C	4.9	5.1
B	0	0
Q3003	0	0
E	0	0
C	0	0
B	0.7	0.7
Q3005	0	0
E	0	0
C	12.3	12.2
B	0	0
Q3901	0	0
E	3.5	3.5
C	3.5	3.5
B	4.2	4.2
CN3001	0	0
1	0	0
2	2.5	2.5
3	2.5	2.5
4	5.0	5.0
5	11.5	11.5
6	0	0
7	0	0
8	0	0
CN3003	0	0
1	4.9	0
2	3.3	0
CN3004	0	0
1	5.1	5.1
2	5.1	5.1
3	0	0
4	0	0
CN3005	0	0
1	5.1	5.1
2	5.1	5.1
3	4.7	4.7
4	5.1	5.1
5	1.4	1.4
6	4.6	4.6
7	5.1	5.1
8	0	0
9	0	0
10	-20.2	-20.2
11	-16.7	-16.7
12	-29.0	-29.0
CN3006	0	0
1	5.1	5.1
2	5.1	5.1
3	0	0
4	0	0
5	4.9	4.9
6	0	0

MODE PIN NO.	REC	PLAY
7	4.9	4.9
CN3301	0	0
1	0.1	0.1
2	0.1	0.1
3	0	0
4	5.0	5.0
5	0.7	0.7
6	0.7	0.7

MODE PIN NO.	REC	PLAY
Q5101	0	0
S	0	0
D	171.2	169.9
G	5.9	5.7
Q5102	0	0
E	0	0
C	5.9	5.7
B	0	0
Q5301	0	0
E	20.3	21.4
C	11.4	11.5
B	20.2	21.2
Q5302	0	0
E	0	0
C	20.2	20.9
B	0	0
Q5303	0	0
E	12.3	12.3
C	11.6	11.6
B	10.9	10.9
Q5304	0	0
E	0	0
C	0	0
B	4.6	4.5
Q5305	0	0
E	0	0
C	11.0	11.0
B	0.5	0.6
Q5306	0	0
E	5.2	5.2
C	6.0	6.0
B	5.8	5.8
Q5312	0	0
E	-14.8	-14.8
C	-15.0	-15.0
B	-15.5	-15.5
Q5313	0	0
E	0	0
C	0	0
B	4.2	4.2
Q5314	0	0
E	31.5	31.5
C	31.5	31.5
B	30.9	30.8
Q5315	0	0
E	5.2	5.1
C	5.9	5.9
B	5.8	5.8
Q5316	0	0
E	0	0
C	5.8	5.8
B	0.6	0.6
Q5319	0	0
E	11.3	11.4
C	12.2	12.3
B	12.0	12.1
Q5320	0	0
E	12.2	12.3
C	12.2	12.2
B	0	0
Q5321	0	0
E	12.3	12.3
C	12.3	12.3
B	0.6	0.6
Q5322	0	0
E	11.6	11.6
C	12.2	12.3
B	12.2	12.2
Q5451	0	0
E	0	0
C	0	0
B	0	0
Q5452	0	0
E	0	0
C	0	0
B	0	0

MODE PIN NO.	REC	PLAY
IC6080	1.2	1.2

MODE PIN NO.	REC	PLAY
2	1.5	1.2
3	4.5	4.5
4	0	0
5	7.5	7.5
6	7.4	7.5
7	7.5	7.5
8	9.0	9.0
Q6001	0	0
E	9.0	9.0
C	11.3	11.3
B	9.6	9.6
Q6030	0	0
E	1.8	1.8
C	0	0
B	1.1	1.1
Q6031	0	0
E	0	0
C	1.1	1.1
B	4.1	4.1
UN6701	0	0
1	0	0
2	0	0
3	0	0
4	5.1	5.1
5	11.3	11.3
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	4.1	4.1

MODE PIN NO.	REC	PLAY
IC4001	0	0
1	0	0
2	0.3	0.3
3	2.4	2.4
4	0	0
5	3.1	3.1
6	5.1	5.1
7	1.6	1.6
8	3.0	3.0
9	5.1	5.1
10	2.5	2.5
11	2.5	2.5
12	2.5	2.5
13	1.7	1.7
14	2.8	2.5
15	2.5	2.5
16	0	0
17	2.4	2.4
18	0	0
19	0.5	0.5
20	0	0
21	0	0
22	1.7	1.6
23	5.0	5.1
24	0	0
CN4001	0	0
1	12.2	12.2
2	0	0
3	1.5	1.5
4	1.5	1.5
Q4001	0	0
E	0	0
C	0	0.6
B	5.0	0

MODE PIN NO.	REC	PLAY
CN7104	0	0
1	1.6	1.6
2	0	0
3	0	0
4	5.1	5.1
5	2.2	2.2
6	5.0	5.1
7	2.8	2.8
8	5.1	5.1
9	0	0
10	1.5	1.6
11	4.7	4.7
CN7105	0	0
1	0	0
2	1.8	1.7
3	11.5	11.5
4	0	0
5	1.1	1.1
6	0	0
7	0	0
8	0	0
9	11.3	11.4
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0

MODE PIN NO.	REC	PLAY
9	11.3	11.4
10	0	0
11	0	0
12	0	0
13	0	5.1
CN7106	0	0
1	0	0
2	0	0
3	-12.6	-12.6
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0
33	0	0
34	0	0
35	0	0
36	0	0
37	0	0
38	0	0
39	0	0
40	0	0
41	0	0
42	0	0
43	0	0
44	0	0
45	0	0
46	0	0
47	0	0
48	0	0
49	0	0
50	0	0
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0
63	0	0
64	0	0
65	0	0
66	0	0
67	0	0
68	0	0
69	0	0
70	0	0
71	0	0
72	0	0
73	0	0
74	0	0
75	0	0
76	0	0
77	0	0
78	0	0
79	0	0
80	0	0

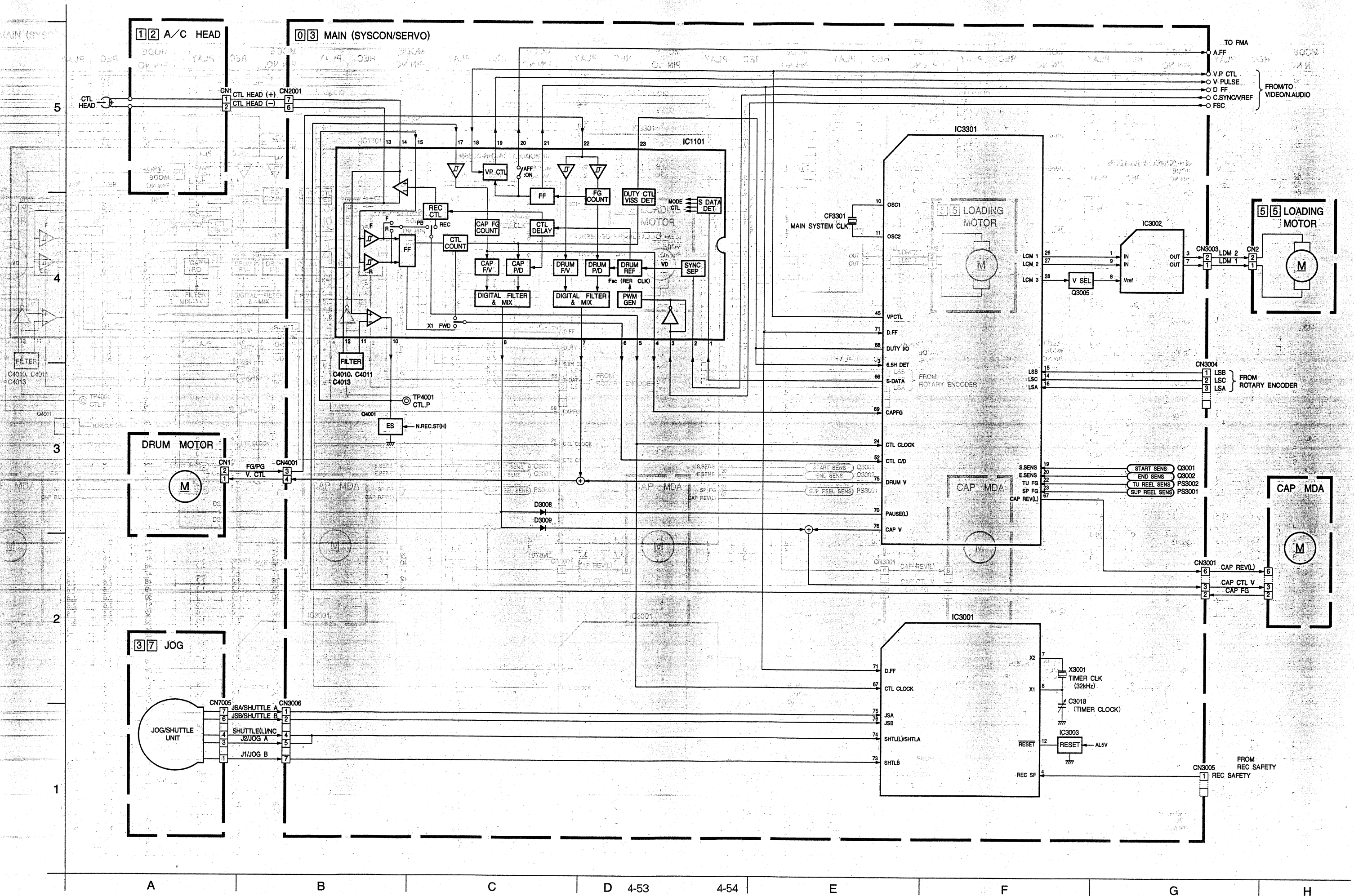
MODE PIN NO.	REC	PLAY
IC7131	1.6	1.6
1	0	0
2	0	0
3	1.6	1.6
4	11.5	11.5
5	1.6	1.6
6	0	0
7	0	0
8	0	11.5
9	0	0
10	0.4	0.5
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	11.5	11.5
20	1.8	1.8
21	1.0	1.1
22	0	0
23	2.5	2.6
24	2.0	2.0
IC7132	0	0
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	6.6	6.6
7	-10.9	-10.9
8	11.6	11.6
9	6.6	6.6
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
Q7131	0	0
E	2.8	2.9
C	0	0
B	2.2	2.2
CN7101	0	0
1	0	0
2	1.8	1.7
3	11.5	11.5
4	0	0
5	1.1	1.1
6	0	0
7	0	0
8	0	0
9	11.3	11.4
10	0	0
11	0	0
12	0	0
13	0	5.1
CN7102	0	0
1	0	0
2	0	0

MODE PIN NO.	REC	PLAY
3	-12.6	-12.6
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
CN7103		
1	1.6	1.6
2	0	0
3	0	0
4	5.1	5.1
5	2.2	2.2
6	5.0	5.1
7	2.8	2.8
8	5.1	5.1
9	-	-
10	1.5	1.6
11	4.7	4.7
J7101		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	11.5
9	0	0
10	-	-
11	0	0
12	-	-
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	1.3	1.3
20	0	0
21	0	0
J7102		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	-	-
11	0	0
12	-	-
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
J7103		
1	0	0
2	0	0
J7104		
1	0	0
2	0	0

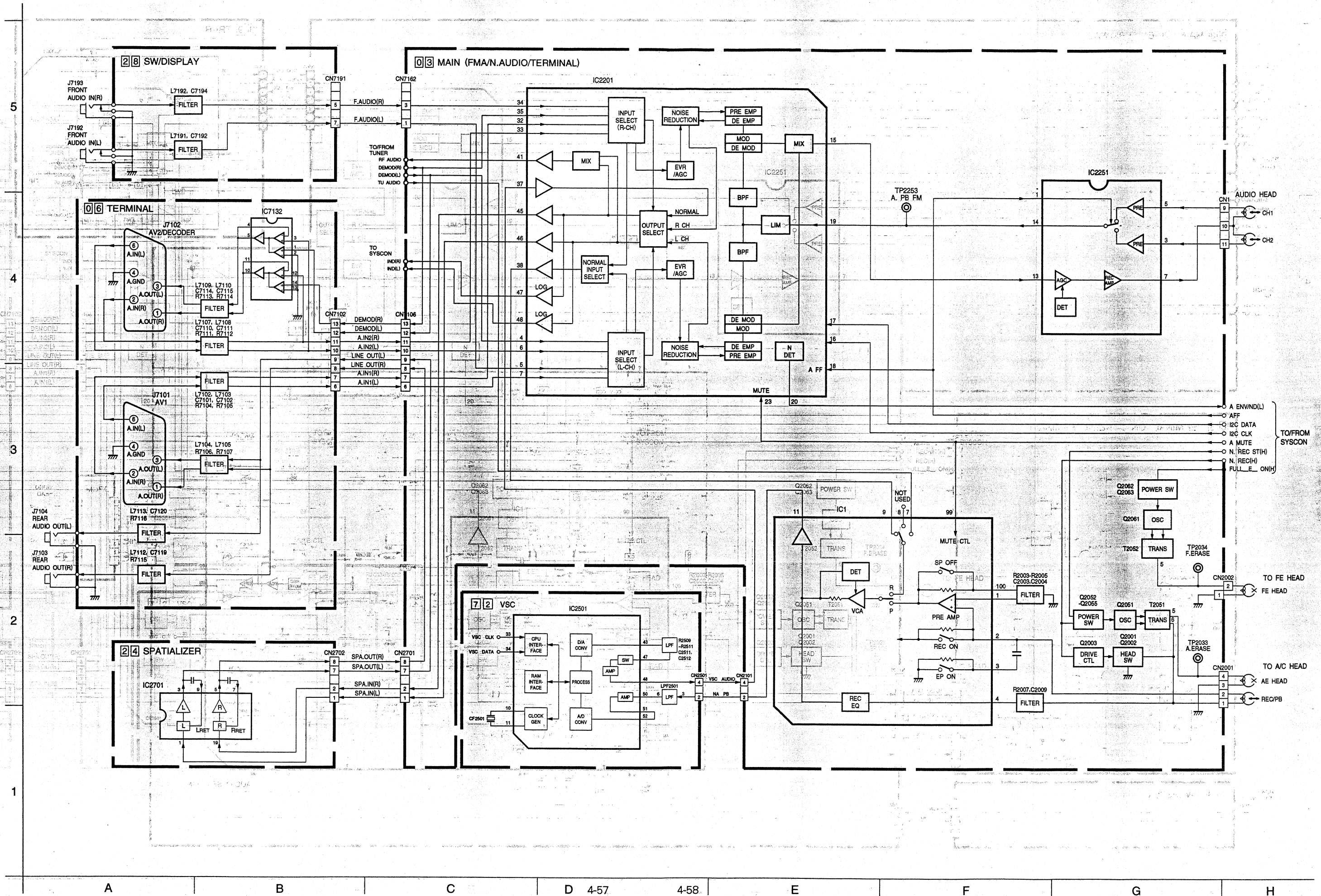
<ON SCREEN>

MODE PIN NO.	REC	PLAY
IC201		
1	0	0
2	2.7	2.7
3	5.1	5.1
4	0	0
5	-	-
6	-	-
7	-	-
8	5.1	5.1
9	-	-
10	4.7	4.7
11	1.5	1.4
12	5.1	5.1
13	5.1	5.1
14	2.9	2.9
15	0	0
16	1.2	1.2
17	2.6	2.6

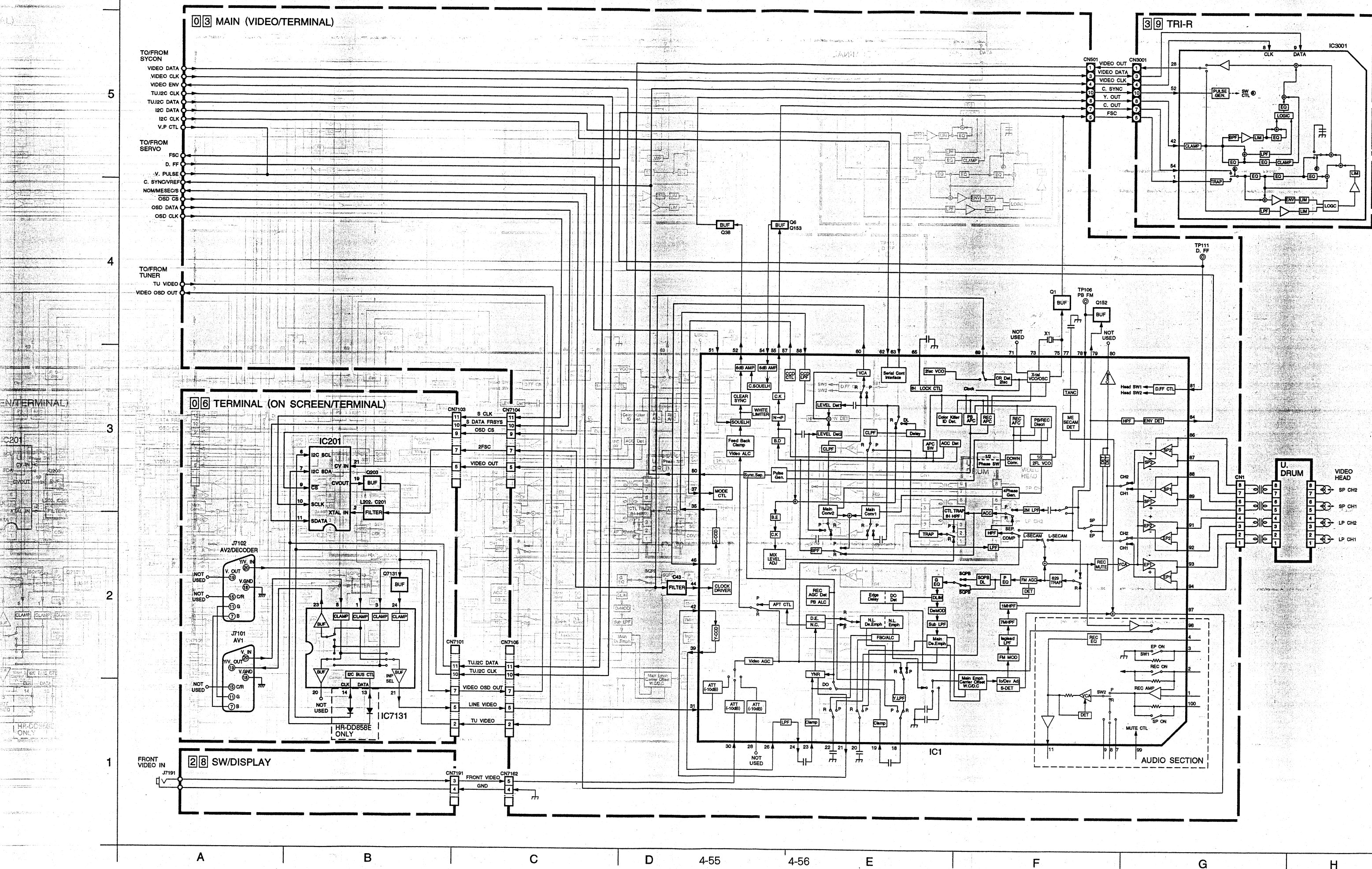
4.28 SYSTEM CONTROL BLOCK DIAGRAM



RECEIVED 200 JAN 1954



4.29 VIDEO BLOCK DIAGRAM



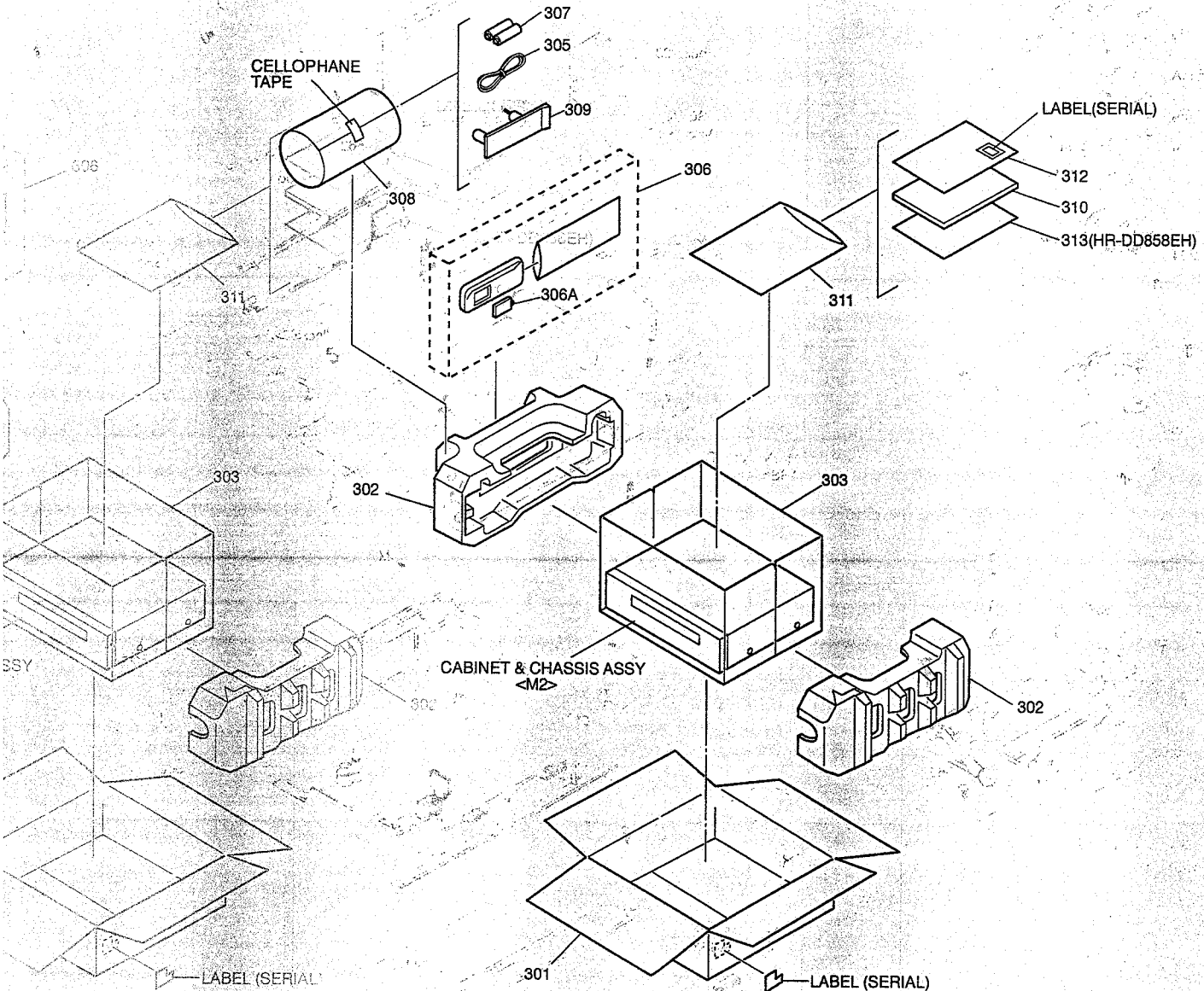
SECTION 5 PARTS LIST

SAFETY PRECAUTION

Parts identified by the Δ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING AND ACCESSORY ASSEMBLY <M1>

The instruction manual to be provided with this product will differ according to the destination.



Δ REF No. PART No. No. PART NAME, DESCRIPTION

PACKING AND ACCESSORY ASSEMBLY <M1>

	LPT0048-007B	INST.BOOK(DA),DD858EH
	LPT0048-008B	INST.BOOK(FI),DD858EH
	LPT0048-009B	INST.BOOK(SW),DD858EH
	LPT0048-010B	INST.BOOK(NO),DD858EH
	LPT0048-011B	INST.BOOK(PT),DD858EH
	LPT0048-012C	INST.BOOK(GR),DD858EH
	LPT0048-006C	INST.BOOK(DU)
	LPT0048-004C	INST.BOOK(IT),DD858EH
	LPT0048-001C	INST.BOOK(EN)
	LPT0048-002C	INST.BOOK(GE)
	LPT0048-003C	INST.BOOK(FR)
	QPC02503515P	POLY BAG
	BT-54008-1	GUARANTEE CARD
	PQ45146-144	SHEET(SPAIN),DD858EH

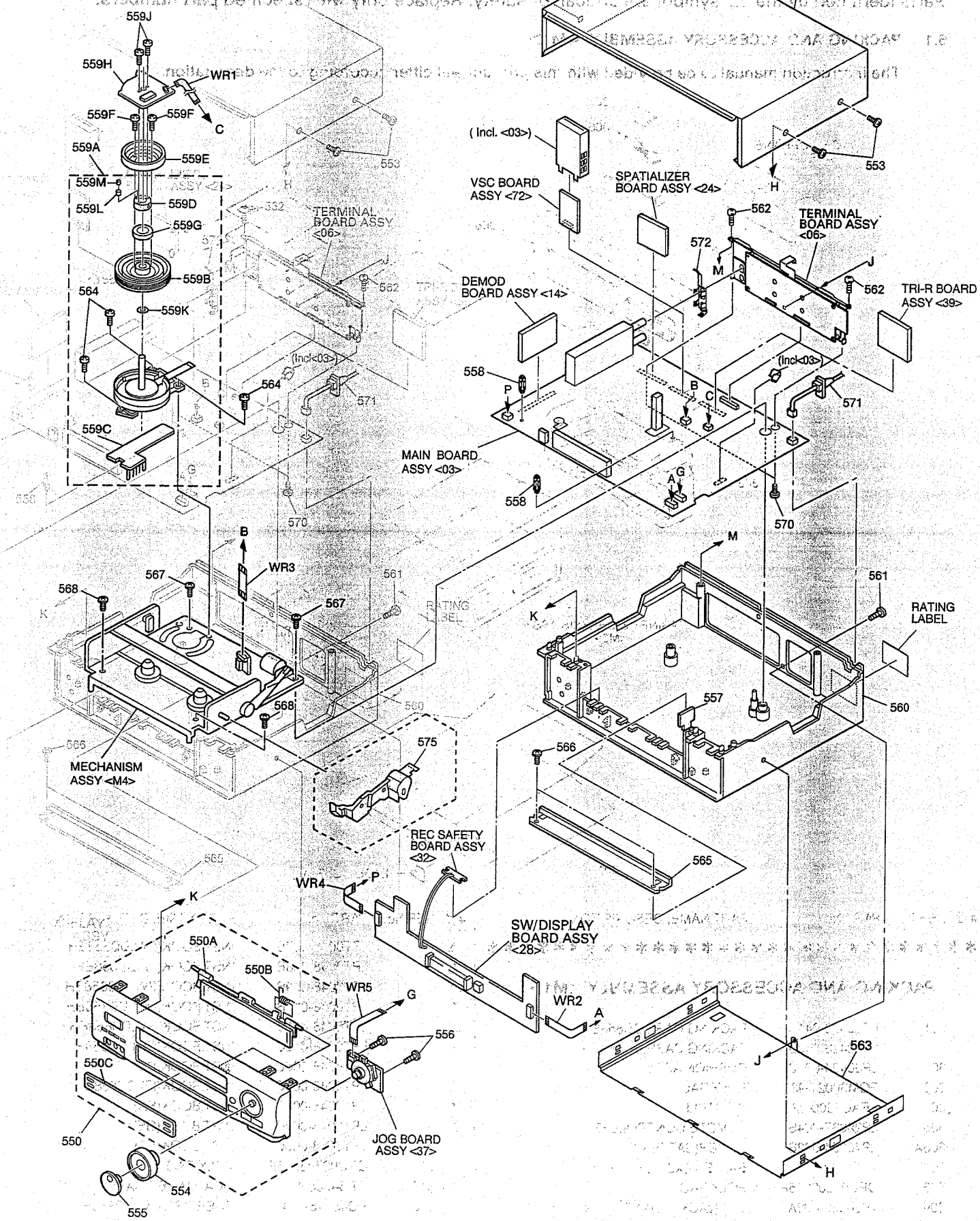
Δ REF No. PART No. PART NAME, DESCRIPTION

Δ	301	LP30423-041B	PACKING CASE,DD858EH
Δ		LP30423-043B	PACKING CASE,DD858EH
Δ	302	LP30424-001D	CUSHION ASSY
Δ	303	PQM30021-93	POLY BAG
Δ	305	PEAC0300-02	RF CABLE
Δ	306	LP20337-004B	REMOTE CONTROLLER
Δ	306A	LP40254-002B	COVER(BATTERY)
Δ	307	-	BATTERY,X2(R6P TYPE)
Δ	308	QPC02202215P	POLY BAG
Δ	309	LP30383-002A	CAP(JACK),CONNECTOR COVER
Δ	310	LPT0048-005B	INST.BOOK(SP),DD858EH

5.2 CABINET AND CHASSIS ASSEMBLY <M2>

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.



Δ REF No. PART No. PART NAME, DESCRIPTION

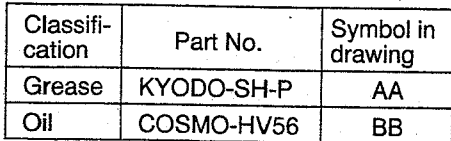
Δ REF No. PART No.

PART NAME, DESCRIPTION

CABINET AND CHASSIS ASSEMBLY <M2>

Δ 550	LP10125-024E	FRONT PANEL ASSY,DD858EH
	LP10125-023E	FRONT PANEL ASSY,DD858E
550A	LP20342-018B	CASSETTE DOOR
550B	PQ46448	TORSION SPRING
550C	LP20343-017A	DISPLAY WINDOW,DD858E
	LP20343-018A	DISPLAY WINDOW,DD858EH
Δ 551	PQ11676-51	TOP COVER
552	QYTDSF3010M	SCREW,TOP COVER(REAR)
553	QYTDSF3010M	SCREW,X4 TOP COVER(SIDE)
554	LP30120-004A	KNOB SHUTTLE
555	LP30121-004A	KNOB JOG
556	QYTDSF2608Z	SCREW,X2 JOG
557	LP40441-001A	SPACER(MECHA)
558	LP40226-001A	PC SUPPORT,X2
559A	LP20319-005A	DRUM SUB ASSY
559B	LP20030-012A	UPPER DRUM ASSY
559C	LPA20002-01B	SENSOR BOARD ASSY
559D	LP40028-001A	COLLAR ASSY
559E	PDZ0179-2	ROTOR ASSY
559F	QYSPSP3006Z	SCREW,X2
559G	PDM4439	CAP
559H	PDZ0181-2-2	STATOR ASSY
559J	QYSPSP2606Z	SCREW,X2
559K	PDM4444-19-2	WASHER
559L	LP40323-001A	CONTACT
559M	LP30004-005A	COMPRES.SPRING
Δ 560	LP10116-003C	BOTTOM CHASSIS
561	QYTDSF3010M	SCREW,TERMINAL
562	QYTDSF3010Z	SCREW,X2 TERMINAL
Δ 563	PQ11668-2-10	BOTTOM COVER
564	QYTDST2610Z	SCREW,X3 DRUM
565	LP30312-001B	BRACKET(CHASSIS)
566	QYTDSF3010Z	SCREW,X2-BRACKET(CHASSIS)
567	QYTDSF4012Z	SCREW,X2 MECHA
568	QYTDSF3010Z	SCREW,X2 MECHA
570	QYTDSF3008Z	SCREW,X2 TERMINAL
Δ 571	QMP4A10-170	POWER CORD
572	PQ21623-1-3	EARTH PLATE(RF)
575	LP20324-002C	DOOR OPENER
WR1	QUQ212-0420CG	FFC WIRE,DRUM
WR2	QUQ112-1214CG	FFC WIRE,DISPLAY
WR3	WJT0005-002A	E-CARD WIRE,A/C HEAD
WR4	QUQ212-0514CG	FFC WIRE,DISPLAY
WR5	QUQ112-0718CG	FFC WIRE,JOG

5-4



NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

PART NAME, DESCRIPTION	PART No.	PART NAME, DESCRIPTION	#	REF No.	PART No.	PART NAME, DESCRIPTION	#	REF No.	PART No.	PART NAME, DESCRIPTION
*****		*****				*****				
MECHANISM ASSEMBLY <M4>		MECHANISM ASSEMBLY <M4>				MECHANISM ASSEMBLY <M4>				
MAIN DECK ASSY	LP30000-0000	MAIN DECK ASSY	1		LP20228-003D	MAIN DECK ASSY	120		LP30339-001A	OPENER GUIDE
T.ARM BEARING	LP30001-0000	T.ARM BEARING	2		LP30232-002A	T.ARM BEARING	121		LP40382-001A	P.R. SHEET
G.POLE CAP	LP30002-0000	G.POLE CAP	3		LP40097-001B	G.POLE CAP	122		LP30016-002A	SLIT WASHER,P.R.ARM
P.BASE ASSY(S)	LP30003-0000	P.BASE ASSY(S)	4		LP40101-003A	P.BASE ASSY(S)	123		LP30482-001A	P.ROLLER GUIDE
P.BASE ASSY(T)	LP30004-0000	P.BASE ASSY(T)	5		LP40104-002A	P.BASE ASSY(T)	130		LP30493-001A	START SENSOR CAP
UV CATCHER 2,X2	LP30005-0000	UV CATCHER 2,X2	6		LP30409-002A	UV CATCHER 2,X2	131		LP40457-001A	END SENSOR SHEET 2
LID GUIDE	LP30006-0000	LID GUIDE	7		LP20234-001C	LID GUIDE	151		LP40103-002A	L.ARM GEAR(T)
TENSION ARM ASSY	LP30007-0000	TENSION ARM ASSY	8		LP40108-001A	TENSION ARM ASSY	152		LP30224-001A	L.ARM GEAR(S)
TENSION SPRING	LP30008-0000	TENSION SPRING	9		LP30003-010A	TENSION SPRING	153		LP40100-001A	PIN,LOADING ARM(S)
REEL SHAFT,X2	LP30009-0000	REEL SHAFT,X2	10		LP40123-001A	REEL SHAFT,X2			LP40100-001A	PIN,LOADING ARM(T)
MAIN BRAKE AY (TAKE-UP)	LP30010-0000	MAIN BRAKE AY (TAKE-UP)	11		LP40111-002B	MAIN BRAKE AY (TAKE-UP)	154		LP40099-001A	TORSION ARM,L.ARM GEAR(S)
TENSION SPRING	LP30011-0000	TENSION SPRING	12		LP30003-002A	TENSION SPRING			LP40099-001A	TORSION ARM,L.ARM GEAR(T)
MAIN BRAKE ASSY (SUPPLY)	LP30012-0000	MAIN BRAKE ASSY (SUPPLY)	13		LP40110-002D	MAIN BRAKE ASSY (SUPPLY)	171		QAR0023-001	LOADING MOTOR
REC SAFTY LEVER	LP30013-0000	REC SAFTY LEVER	14		LP30228-001A	REC SAFTY LEVER	174		PQ43546-1-2	MOTOR PULLEY
TENSION SPRING	LP30014-0000	TENSION SPRING	15		LP30003-004A	TENSION SPRING	175		LP30005-003A	BELT,LOADING MOTOR
CAPSTAN MOTOR	LP30015-0000	CAPSTAN MOTOR	16		QAR0032-003	CAPSTAN MOTOR	176		LP30230-001B	MOTOR GUIDE
ADJUST PIN,X2	LP30016-0000	ADJUST PIN,X2	17		PQ46302-1-3	ADJUST PIN,X2	191		QA0010-003	AC HEAD
L.A.GEAR SHAFT	LP30017-0000	L.A.GEAR SHAFT	51		LP30223-003B	L.A.GEAR SHAFT	194		LP30228-001A	HEAD BASE
R.ENCODER GUIDE	LP30018-0000	R.ENCODER GUIDE	52		LP20233-003B	R.ENCODER GUIDE	195		LP30004-012A	COMPRES. SPRING,X3
CTL PLATE GUIDE	NAH0001-001	CTL PLATE GUIDE	53		LP30226-003B	CTL PLATE GUIDE	196		LP40236-001A	COMPRESSION SPRING
WORM GEAR	LP40008-001A	WORM GEAR	54		LP40120-001A	WORM GEAR	197		LP40213-002B	SPECIAL SCREW,X3
CTL CAM	LP30459-001A	CTL CAM	55		LP30229-001C	CTL CAM	211		LP20240-001B	DRIVE ARM
TUP LEVER	LP30367-001A	TUP LEVER	56		LP30249-003B	TUP LEVER	212		LP40137-001A	TORSION SPRING
TENSION SPRING	LP30259-002E	TENSION SPRING	57		LP30003-006A	TENSION SPRING	231		NAH0001-001	FULL ERASE HEAD
TUP HEAD	LP30240-002C	TUP HEAD	58		LP40119-002A	TUP HEAD	232		LP40098-001B	GUIDE POLE(S)
C.BRAKE ASSY	LP40136-001D	C.BRAKE ASSY	59		LP40113-001A	C.BRAKE ASSY	233		LP30459-001A	TENSION STUD BASE
CTL PLATE	LP10081-001D	CTL PLATE	60		LP10080-002F	CTL PLATE	234		LP40367-001A	TENSION STUD
CASSETTE GEAR	LP40403-001C	CASSETTE GEAR	61		LP40403-001C	CASSETTE GEAR	251		LP30239-002E	LIMIT GEAR(1)
LINK LEVER ASSY	LP30257-001C	LINK LEVER ASSY	62		LP30257-001C	LINK LEVER ASSY	252		LP30240-002C	LIMIT GEAR(2)
DIRECT GEAR	LP30241-001C	DIRECT GEAR	63		LP40122-001B	DIRECT GEAR	253		LP40136-001D	TORSION SPRING
COMPRESSION SPRING	LP30255-001G	COMPRESSION SPRING	64		LP30255-001G	COMPRESSION SPRING	271		LP10081-001D	SIDE HOLDER(L)
CLUTCH UNIT	LP30256-001E	CLUTCH UNIT	66		LP40115-002C	CLUTCH UNIT	272		LP40403-001C	S.HOLDER(R)ASSY
ROTARY ENCODER	LP30256-001E	ROTARY ENCODER	67		QSW0554-003	ROTARY ENCODER	273		LP30257-001C	CASSETTE HOLDER
BELT,CAPSTAN MOTOR	LP40168-001A	BELT,CAPSTAN MOTOR	68		LP30005-005A	BELT,CAPSTAN MOTOR	274		LP20241-001C	TOP PLATE
CHANGE LEVER	LP40218-001B	CHANGE LEVER	69		LP30235-002A	CHANGE LEVER	275		LP30258-001B	SPRING PLATE,X2
CTL BRACKET(1)	LP30019-008C	CTL BRACKET(1)	70		LP40379-001A	CTL BRACKET(1)	276		LP30255-001G	LOCK LEVER(L)
SLIT WASHER,D.GEAR	LP40275-001A	SLIT WASHER,D.GEAR	71		LP30017-009A	SPACER,D.GEAR	277		LP30256-001E	LOCK LEVER(R)
SPACER,D.GEAR	LP40276-001A	SPACER,D.GEAR	72		LP30017-009A	SPACER,D.GEAR	278		LP40168-001A	TOR.SPRING(L)
TORSION SPRING	QYDST2608Z	TORSION SPRING	73		LP40355-002A	TORSION SPRING	279		LP40218-001B	TOR.SPRING(R)
IDLER ARM ASSY	QYDST2608Z	IDLER ARM ASSY	101		LP40114-002D	IDLER ARM ASSY	280		LP30019-008C	PAD,X2
IDLER LEVER	QYDST2608Z	IDLER LEVER	102		LP30236-002A	IDLER LEVER	281		LP40275-001A	PLATE(S)
SPACER,X2 REEL DISK	QYDST2608Z	SPACER,X2 REEL DISK	103		LP30017-004A	SPACER,X2 REEL DISK	282		LP40276-001A	PLATE(T)
REEL DISK (SUPPLY)	QYDST2608Z	REEL DISK (SUPPLY)	104		LP20237-001B	REEL DISK (SUPPLY)	401		QYDST2608Z	SCREW,FE HEAD
REEL DISK (TAKE-UP)	QYDST2608Z	REEL DISK (TAKE-UP)	105		LP20238-001B	REEL DISK (TAKE-UP)	402		QYDST2608Z	SCREW,X2 HEAD BASE
S.BRAKE(T)ASSY	QYDST2608Z	S.BRAKE(T)ASSY	106		LP40112-001D	S.BRAKE(T)ASSY			QYDST2606Z	SCREW,X6 PLATE(S,T)
TENSION SPRING	QYDST2608Z	TENSION SPRING	107		LP40357-001B	TENSION SPRING			QYDST2606Z	SCREW,L.A.GEAR SHAFT
T.BRAKE ASSY	QYDST2608Z	T.BRAKE ASSY	108		LP40109-002C	T.BRAKE ASSY			QYDST2606Z	SCREW,R.ENCODER GUIDE
ADJUST PIN	QYDST2608Z	ADJUST PIN	109		PQ46302-1-3	ADJUST PIN			QYDST2606Z	SCREW,X2 LID GUIDE
PLEVER ASSY	QYDST2608Z	PLEVER ASSY	110		LP40149-001B	PLEVER ASSY	403		QYSPSTG2606Z	SCREW,POLE BASE(S)
TORSION SPRING	QYDST2608Z	TORSION SPRING	111		LP40148-001A	TORSION SPRING,P.ROLLER			QYSPSTG2606Z	SCREW,C.P.GUIDE
P.R.ARM ASSY	QYDST2608Z	P.R.ARM ASSY	112		LP40105-001B	P.R.ARM ASSY	404		QYTPSP3003Z	SCREW,X2 LOADING MOTOR
GUIDE ARM ASSY	QYDST2608Z	GUIDE ARM ASSY	113		LP40106-001B	GUIDE ARM ASSY	406		QYDTSF2608M	SCREW,CTL BRACKET(1)
TENSION SPRING	QYDST2608Z	TENSION SPRING	114		LP40134-001B	TENSION SPRING	407		QYDTSF2608M	SCREW,X3 CAPSTAN MOTOR
DRIVE GEAR	QYDST2608Z	DRIVE GEAR	115		LP30243-001B	DRIVE GEAR	409		QYTPST2620Z	SCREW,ROTARY ENCODER
RELAY GEAR	QYDST2608Z	RELAY GEAR	116		LP30242-001A	RELAY GEAR	451		QYTPST2606Z	SCREW,X2 UV CATCHER
C.H.BRACKET	QYDST2608Z	C.H.BRACKET	117		LP40214-001A	C.H.BRACKET	452		LP30016-001A	SLIT WASHER,IDLER ARM
GUIDE RAIL	QYDST2608Z	GUIDE RAIL	118		LP30244-001C	GUIDE RAIL			PQM30017-24	SLIT WASHER,CTL CAM
RAIL CAP	QYDST2608Z	RAIL CAP	119		LP40118-001A	RAIL CAP			PQM30017-47	SLIT WASHER,CLUTCH
									PQM30017-47	SLIT WASHER,X2 C.H.BRACKET

REF No. PART No. PERSON PART NAME DESCRIPTION

PG104RS
MAIN BOARD ASSEMBLY <03> ISB 534017

W11000	LPA10014-17C	MAIN BOARD ASSY,DD858EH	
W11000	LPA10014-18C	MAIN BOARD ASSY,DD858E	18-04-T2
211000	JCP8016-MSA	IC	or P2104RS
211000	JCP8016-MSB	IC	or 1SR153-400-T2
32201	AN3665-FB-A	IC	or 10EL54
32251	AN3328S	IC	or 1N4148M
33001	HD6433929TB19F	QFP IC (MCU)	or 1SS133
33002	TA7291S	IC	DE155 or 1SS133
33003	S-80728AN-DR-X	IC	DE201 or ERA18-02-T2
33004	S-80828ANUP-W	IC	or 1SR153-400-T2
33004	M24C08-BN6	IC	DE202 or -FIMAL-120
33004	AT24C08P	IC	or PCF06A2S
33004	AT24C08B/P	IC	or Y3901C2
33004	AT24C08-10PC	IC	or MA8444
33301	HD6433926TB28F	QFP IC (MCU)	DE203 or FME-24
33302	TA7291S	IC	or FSKQ40B
34001	BU2885CS	IC	or MATD49
36080	BA15218F-XE	IC	or YG801C04
211000	2SB1218A/QR/X	TRANSISTOR	DE208 or 10EL52
211000	2SA1576A/QR/X	TRANSISTOR	or 1SR153-400-T2
211000	2PA1576R/R-X	TRANSISTOR	or ERA18-02-T2
221000	UN521E	TRANSISTOR	or PC104RS
221000	RN1309	TRANSISTOR	or AUG12
221000	DTC144WU	TRANSISTOR	or ERA18-02-T2
261000	2SB1218A/QR/X	TRANSISTOR	or PG104RS
261000	2SA1576A/QR/X	TRANSISTOR	or 10EL52
261000	2PA1576R/R-X	TRANSISTOR	or 1SR153-400-T2
338000	2SD1819A/QRS-X	TRANSISTOR	DE311 or AU01Z
338000	2SC4081/QRS/X	TRANSISTOR	or ERA18-02-T2
338000	2PC4081R/R-X	TRANSISTOR	or 1SR153-400-T2
3102	AN5211	TRANSISTOR	or 10EL52
3102	DTC114UE	TRANSISTOR	or PG104RS
3102	RN1302	TRANSISTOR	or 10EL52
3152	2SB1218A/QR/X	TRANSISTOR	DE301 or UZ159SA
3152	2SA1576A/QRS-X	TRANSISTOR	or RD16ES/B1-T2
3152	2PD1576R/R-X	TRANSISTOR	or MTZJ15A
3153	2SD1819A/QRS-X	TRANSISTOR	DE302 or 1ES2
3153	2PC4081R/R-X	TRANSISTOR	or ERA15-02-T2
32000	2SC4081/QRS-X	TRANSISTOR	DE303 or UZ12B9SC
32000	2PC4081R/R-X	TRANSISTOR	DE304 or RD12ES/B3-T2
32000	2SD1819A/QRS-X	TRANSISTOR	DE304 or 1N4148M
32000	2PC4081R/R-X	TRANSISTOR	or 1SS133
32002	2SC4081/QRS-X	TRANSISTOR	DE305 or UZ30ESA
32002	2PC4081R/R-X	TRANSISTOR	or MTZJ30A
32003	2SD1819A/QRS-X	TRANSISTOR	or RD30ES/B1-T2
32003	DTA144WU	TRANSISTOR	DE307 or UZ21B9SC
32003	RN2309	TRANSISTOR	or MTZJ62C
32003	UN511E	TRANSISTOR	or RD52ES/B3
32051	2SC4081/QRS-X	TRANSISTOR	DE308 or 1SS133
32051	2PC4081R/R-X	TRANSISTOR	DE311 or RD51ES/B1-T2
32051	2SD1819A/QRS-X	TRANSISTOR	or MA4051MA
32052	2SA1576A/QR/X	TRANSISTOR	DE312 or 1SS133
32052	2SB1218A/QR/X	TRANSISTOR	or 1SS133
32052	2PA1576R/R-X	TRANSISTOR	DE321 or DAN2021
32053	DTC144WU	TRANSISTOR	DE351 or 11E275
32053	RN1309	TRANSISTOR	DE352 or 11E275
32053	UN521E	TRANSISTOR	DE353 or 11E275

Q2054	2SA1576A/QR/-X	TRANSISTOR
	or 2SB218A/QR/-X	TRANSISTOR
	or 2PA1576R/-X	TRANSISTOR
Q2055	DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
	or UN521E	TRANSISTOR
Q2061	2SC4081/QRS/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q2062	DTA114EU	TRANSISTOR
	or RN2302	TRANSISTOR
	or UN5111	TRANSISTOR
Q2063	DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
	or UN521E	TRANSISTOR
Q2102	DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
	or UN521E	TRANSISTOR
Q2251	DTA144WU	TRANSISTOR
	or RN2309	TRANSISTOR
	or UN511E	TRANSISTOR
Q2254	DTC114EU	TRANSISTOR
	or RN1302	TRANSISTOR
	or UN5211	TRANSISTOR
Q2255	DTA144WU	TRANSISTOR
	or RN2309	TRANSISTOR
	or UN511E	TRANSISTOR
Q2711	2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
Q2712	2SC4081/QRS/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q2713	DTA114EU	TRANSISTOR
	or RN2302	TRANSISTOR
	or UN5111	TRANSISTOR
Q2714	DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
	or UN521E	TRANSISTOR
Q3001	PTZ-NV16	DIODE PHOTO TRANSISTOR
	or PTZ-NV09	DIODE PHOTO TRANSISTOR
Q3002	PTZ-NV16	DIODE PHOTO TRANSISTOR
	or PTZ-NV09	DIODE PHOTO TRANSISTOR
Q3003	2SD1819A/QRS/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q3005	2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR
Q3301	2SD1819A/QRS/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q4001	DTC114EU	TRANSISTOR
	or RN1302	TRANSISTOR
	or UN5211	TRANSISTOR
Q5101	2SK2632-CB14	POWER MOS FET
	or 2SK2666F04	FE TRANSISTOR
	or 2SK2129-LT	POWER MOS FET
	or 2SK2632	POWER MOS FET
	or 2SK2129	POWER MOS FET
Q5102	2SD2144S/IV/LT	TRANSISTOR

#	REF No.	PART No.	#	REF No.	PART No.	PART NAME, DESCRIPTION
		or ERA18-04-T2	Q5301		2SB1256	TRANSISTOR
		or PG104RS	Q5302		UN5215	TRANSISTOR
		or 1SR153-400-T2			or DTC114TU	TRANSISTOR
		or 10ELS4	Q5303		2SB1256	TRANSISTOR,DD858E
D5102		AU01	Q5304		UN5211	TRANSISTOR
		or ERA18-04-T2			or DTC114EU	TRANSISTOR
		or PG104RS			or RN1302	TRANSISTOR
		or 1SR153-400-T2	Q5305		2SC1740S/RS-T	TRANSISTOR
		or 10ELS4			or 2SC3199/YG-T	TRANSISTOR
D5103		1N4148M	Q5306		2SD2144S/UVW-T	TRANSISTOR
		or 1SS133	Q5312		2SA1745/6-7-X	TRANSISTOR,DD858E
D5105		1SS133	Q5313		UN5211	TRANSISTOR,DD858E
D5201		ERA18-02-T2			or RN1302	TRANSISTOR,DD858E
		or 1SR153-400-T2			or DTC114EU	TRANSISTOR,DD858E
D5202		FML-12S	Q5314		2SA1576A/RS-X	TRANSISTOR
		or FCF06A20			or 2SB1218A/RS-X	TRANSISTOR,DD858E
		or YG901C2	Q5315		2SD2061/FI	TRANSISTOR
		or MA644	Q5316		2SD1819A/RS-X	TRANSISTOR
D5206		FME-24			or 2PC4081/R-X	TRANSISTOR
		or F5KQ40B			or 2SC4081/RS-X	TRANSISTOR
		or MA7D49	Q5319		2SC3616/ML-T	TRANSISTOR
		or YG801C04	Q5320		UN5111	TRANSISTOR
D5209		10ELS2			or DTA114EU	TRANSISTOR
		or 1SR153-400-T2			or RN2302	TRANSISTOR
		or ERA18-02-T2			or UN5111	TRANSISTOR,DD858E
		or PG104RS			or DTA114EU	TRANSISTOR,DD858E
D5210		AU01Z			or RN2302	TRANSISTOR,DD858E
		or ERA18-02-T2	Q5322		2SD1450/ST-T	TRANSISTOR
		or PG104RS			or 2SD1302/ST-T	TRANSISTOR
		or 10ELS2	Q5451		2SB927/ST-T	TRANSISTOR
		or 1SR153-400-T2	Q5452		DTC144EU	TRANSISTOR
D5211		AUC1Z	Q6001		2SC3068	TRANSISTOR
		or ERA18-02-T2	Q6030		2SB1218A/RS-X	TRANSISTOR
		or 1SR153-400-T2			or 2PA1576/R-X	TRANSISTOR
		or 10ELS2			or 2SA1576A/RS-X	TRANSISTOR
		or PG104RS	Q6031		DTC114EU	TRANSISTOR
D5301		UZ15ESA			or RN1302	TRANSISTOR
		or RD15ES/B1-T2			or UN5211	TRANSISTOR
		or MTZJ15A	D2001		1N4148M	DIODE
D5302		11ES2			or 1SS133	DIODE
		or ERA15-02-T2	D2201		11ES2	DIODE
D5303		UZ12BSC	D2252		1SS133	DIODE
		or RD12ES/B3-T2			or 1N4148M	DIODE
		or MTZJ15C	D2253		DAP202U	DIODE
D5304		1N4148M	D3001		LNB2301L01VI	LE DIODE
		or 1SS133	D3002		11ES2	DIODE
D5305		UZ30BSA	D3003		11ES2	DIODE
		or MTZJ30A	D3005		RD39ES/B3-T2	ZENER DIODE
		or RD30ES/B1-T2			or MTZJ39C	ZENER DIODE
D5307		UZ8.2BSC			or UZ39BSC	ZENER DIODE
		or MTZJ15C	D3007		1SS133	DIODE
		or RD6.2ES/B3-T2			or 1N4148M	DIODE
D5308		1SS133	D3008		1SS133	DIODE
D5311		RD5.1JS/B2-T2			or 1N4148M	DIODE
		or MA4148M	D3009		1SS133	DIODE
D5312		1N4148M			or 1N4148M	DIODE
		or 1SS133	D3016		DAP202U	DIODE
D5321		DAN202U	D5001		11WB(A)60F4102	BRIDGE DIODE
D5331		11E2-T2			or 11WB(A)60F4062X	BRIDGE DIODE
D5352		11E2-T5			or 11WB(A)60F4072X	BRIDGE DIODE

#	△ REF No.	PART No.	PART NAME	DESCRIPTION
		or ERA18-04-T2	FR DIODE	
		or PG104RS	FR DIODE	
		or 1SR153-400-T2	FR DIODE	
		or 10ELS4	FR DIODE	
D5102		AU01	FR DIODE	
		or ERA18-04-T2	FR DIODE	
		or PG104RS	FR DIODE	
		or 1SR153-400-T2	FR DIODE	
		or 10ELS4	FR DIODE	
D5103		1N4148M	DIODE	
		or 1SS133	DIODE	
D5105		1SS133	DIODE,DD858E	
D5201		ERA18-02-T2	FR DIODE	
		or 1SR153-400-T2	FR DIODE	
D5202		FML-12S	FR DIODE	
		or FCF06A20	FR DIODE	
		or YG901C2	FR DIODE	
		or MA644	FR DIODE	
D5206		FMB-24	BARRIER DIODE	
		or F5KQ40B	BARRIER DIODE	
		or MATD49	SB DIODE	
		or YG801C04	SB DIODE	
D5209		10ELS2	FR DIODE	
		or 1SR153-400-T2	FR DIODE	
		or ERA18-02-T2	FR DIODE	
		or PG104RS	FR DIODE	
D5210		AU01Z	FR DIODE	
		or ERA18-02-T2	FR DIODE	
		or PG104RS	FR DIODE	
		or 10ELS2	FR DIODE	
		or 1SR153-400-T2	FR DIODE	
D5211		AU01Z	FR DIODE	
		or ERA18-02-T2	FR DIODE	
		or 1SR153-400-T2	FR DIODE	
		or 10ELS2	FR DIODE	
		or PG104RS	FR DIODE	
D5301		UZ15BSA	ZENER DIODE	
		or RD15ES/B11-T2	ZENER DIODE	
		or MTZJ15A	ZENER DIODE	
D5302		11ES2	DIODE	
		or ERA15-02-T2	DIODE	
D5303		UZ12BSC	ZENER DIODE	
		or RD12ES/B3-T2	ZENER DIODE	
		or MTZJ12C	ZENER DIODE	
D5304		1N4148M	DIODE	
		or 1SS133	DIODE	
D5305		UZ30BSA	ZENER DIODE	
		or MTZJ30A	ZENER DIODE	
		or RD30ES/B11-T2	ZENER DIODE	
D5307		UZ6.2BSC	ZENER DIODE	
		or MTZJ6.2C	ZENER DIODE	
		or RD6.2ES/B3-T2	ZENER DIODE	
D5308		1SS133	DIODE,DD858E	
D5311		RD5.1J5/B2-T2	ZENER DIODE	
		or MA4051N/M-T2	ZENER DIODE	
D5312		1N4148M	DIODE	
		or 1SS133	DIODE	
D5321		DAN202U	DIODE,DD858E	
D5351		11E2-T5	DIODE	
D5352		11E2-T5	DIODE	

Δ REF No.	PART No.	PART NAME, DESCRIPTION	# Δ REF No.	PART No.	PART NAME, DESCRIPTION	# Δ REF No.	PART No.	PART NAME, DESCRIPTION	# Δ REF No.	PART No.	PART NAME, DESCRIPTION	# Δ REF No.	PART No.	PART NAME, DESCRIPTION
D5354	11E2-T5	DIODE	R2060	NRSA02J-183X	MG RESISTOR	R3022	NRSA02J-472X	MG RESISTOR	R3214	NRSA02J-181X	MG RESISTOR	R3214	NRSA02J-181X	MG RESISTOR
D6001	MTZJ10B	ZENER DIODE	R2061	NRSA02J-273X	MG RESISTOR	R3023	NRSA02J-472X	MG RESISTOR	R3215	NRSA02J-273X	MG RESISTOR	R3215	NRSA02J-273X	MG RESISTOR
D6002	HZ30-2L-T2	ZENER DIODE	R2062	NRSA02J-3R3X	MG RESISTOR	R3024	NRSA02J-102X	MG RESISTOR	R3220	NRSA02J-103X	MG RESISTOR	R3220	NRSA02J-103X	MG RESISTOR
	or HZ30-2LTD	Z DIODE (M)	R2063	NRSA02J-151X	MG RESISTOR	R3025	NRSA02J-472X	MG RESISTOR	R3223	NRSA02J-472X	MG RESISTOR	R3223	NRSA02J-472X	MG RESISTOR
R1	NRSA02J-0R0X	MG RESISTOR	R2101	NRSA02J-102X	MG RESISTOR	R3031	NRSA02J-103X	MG RESISTOR	R3224	NRSA02J-472X	MG RESISTOR	R3224	NRSA02J-472X	MG RESISTOR
R2	NRSA02J-561X	MG RESISTOR	R2102	NRSA02J-0R0X	MG RESISTOR	R3032	NRSA02J-103X	MG RESISTOR	R3225	NRSA02J-104X	MG RESISTOR	R3225	NRSA02J-104X	MG RESISTOR
R3	NRSA02J-273X	MG RESISTOR	R2105	NRSA02J-331X	MG RESISTOR	R3033	NRSA02J-103X	MG RESISTOR	R3226	NRSA02J-103X	MG RESISTOR	R3226	NRSA02J-103X	MG RESISTOR
R4	NRSA02J-822X	MG RESISTOR	R2201	NRSA02J-0R0X	MG RESISTOR	R3034	NRSA02J-103X	MG RESISTOR	R3227	NRSA02J-393X	MG RESISTOR	R3227	NRSA02J-393X	MG RESISTOR
R5	NRSA02J-223X	MG RESISTOR	R2202	NRSA02J-333X	MG RESISTOR	R3035	NRSA02J-103X	MG RESISTOR	R3228	NRSA02J-474X	MG RESISTOR	R3228	NRSA02J-474X	MG RESISTOR
R6	NRSA02J-122X	MG RESISTOR	R2203	NRSA02J-473X	MG RESISTOR	R3036	NRSA02J-103X	MG RESISTOR	R3229	NRSA02J-334X	MG RESISTOR	R3229	NRSA02J-334X	MG RESISTOR
R7	NRSA02J-472X	MG RESISTOR	R2204	NRSA02J-393X	MG RESISTOR	R3037	NRSA02J-103X	MG RESISTOR	R3230	NRSA02J-102X	MG RESISTOR	R3230	NRSA02J-102X	MG RESISTOR
R9	NRSA02J-333X	MG RESISTOR	R2205	NRSA02J-473X	MG RESISTOR	R3038	NRSA02J-103X	MG RESISTOR	R3231	NRSA02J-472X	MG RESISTOR	R3231	NRSA02J-472X	MG RESISTOR
R10	NRSA02J-102X	MG RESISTOR	R2206	NRSA02J-473X	MG RESISTOR	R3039	NRSA02J-102X	MG RESISTOR	R3232	NRSA02J-472X	MG RESISTOR	R3232	NRSA02J-472X	MG RESISTOR
R11	NRSA02J-471X	MG RESISTOR	R2207	NRSA02J-682X	MG RESISTOR	R3040	NRSA02J-152X	MG RESISTOR	R3233	NRSA02J-103X	MG RESISTOR	R3233	NRSA02J-103X	MG RESISTOR
R13	NRSA02J-0R0X	MG RESISTOR	R2208	NRSA02J-183X	MG RESISTOR	R3041	NRSA02J-102X	MG RESISTOR	R3234	NRSA02J-103X	MG RESISTOR	R3234	NRSA02J-103X	MG RESISTOR
R14	NRSA02J-0R0X	MG RESISTOR	R2209	NRSA02J-682X	MG RESISTOR	R3042	NRSA02J-102X	MG RESISTOR	R3235	NRSA02J-221X	MG RESISTOR	R3235	NRSA02J-221X	MG RESISTOR
R15	NRSA02J-0R0X	MG RESISTOR	R2210	NRSA02J-472X	MG RESISTOR	R3043	NRSA02J-102X	MG RESISTOR	R3236	NRSA02J-221X	MG RESISTOR	R3236	NRSA02J-221X	MG RESISTOR
R16	NRSA02J-0R0X	MG RESISTOR	R2211	NRSA02J-511X	MG RESISTOR	R3044	NRSA02J-102X	MG RESISTOR	R3237	NRSA02J-103X	MG RESISTOR	R3237	NRSA02J-103X	MG RESISTOR
R17	NRSA02J-0R0X	MG RESISTOR	R2212	NCB21EK-683X	CAPACITOR	R3045	NRSA02J-102X	MG RESISTOR	R3238	NRSA02J-103X	MG RESISTOR	R3238	NRSA02J-103X	MG RESISTOR
R18	NRSA02J-0R0X	MG RESISTOR	R2213	NRSA02J-472X	MG RESISTOR	R3046	NRSA02J-102X	MG RESISTOR	R3239	NRSA02J-103X	MG RESISTOR	R3239	NRSA02J-103X	MG RESISTOR
R19	NRSA02J-0R0X	MG RESISTOR	R2214	NRSA02J-511X	MG RESISTOR	R3047	NRSA02J-102X	MG RESISTOR	R3240	NRSA02J-0R0X	MG RESISTOR	R3240	NRSA02J-0R0X	MG RESISTOR
R23	NRSA02J-822X	MG RESISTOR	R2215	NRSA02J-682X	MG RESISTOR	R3048	NRSA02J-102X	MG RESISTOR	R3241	NRSA02J-0R0X	MG RESISTOR	R3241	NRSA02J-0R0X	MG RESISTOR
R24	NRSA02J-682X	MG RESISTOR	R2216	NRSA02J-183X	MG RESISTOR	R3049	NRSA02J-102X	MG RESISTOR	R3242	NRSA02J-0R0X	MG RESISTOR	R3242	NRSA02J-0R0X	MG RESISTOR
R25	NRSA02J-152X	MG RESISTOR	R2217	NRSA02J-682X	MG RESISTOR	R3050	NRSA02J-472X	MG RESISTOR	R3243	NRSA02J-103X	MG RESISTOR	R3243	NRSA02J-103X	MG RESISTOR
R52	NRSA02J-0R0X	MG RESISTOR	R2218	NRSA02J-473X	MG RESISTOR	R3051	NRSA02J-102X	MG RESISTOR	R3246	NRSA02J-472X	MG RESISTOR	R3246	NRSA02J-472X	MG RESISTOR
R56	NRSA02J-0R0X	MG RESISTOR	R2219	NRSA02J-473X	MG RESISTOR	R3052	NRSA02J-102X	MG RESISTOR	R3249	NRSA02J-103X	MG RESISTOR	R3249	NRSA02J-103X	MG RESISTOR
R57	NRSA02J-102X	MG RESISTOR	R2220	NRSA02J-393X	MG RESISTOR	R3053	NRSA02J-472X	MG RESISTOR	R3250	NRSA02J-103X	MG RESISTOR	R3250	NRSA02J-103X	MG RESISTOR
R60	NRSA02J-183X	MG RESISTOR	R2221	NRSA02J-473X	MG RESISTOR	R3054	NRSA02J-272X	MG RESISTOR	R3253	NRSA02J-103X	MG RESISTOR	R3253	NRSA02J-103X	MG RESISTOR
R61	NRSA02J-153X	MG RESISTOR	R2222	NRSA02J-333X	MG RESISTOR	R3055	NRSA02J-102X	MG RESISTOR	R3255	NRSA02J-103X	MG RESISTOR	R3255	NRSA02J-103X	MG RESISTOR
R62	NRSA02J-102X	MG RESISTOR	R2223	NRSA02J-222X	MG RESISTOR	R3056	NRSA02J-102X	MG RESISTOR	R3256	NRSA02J-391X	MG RESISTOR	R3256	NRSA02J-391X	MG RESISTOR
R68	NRSA02J-0R0X	MG RESISTOR	R2224	NRSA02J-471X	MG RESISTOR	R3057	NRSA02J-471X	MG RESISTOR	R3257	NRSA02J-391X	MG RESISTOR	R3257	NRSA02J-391X	MG RESISTOR
R69	NRSA02J-0R0X	MG RESISTOR	R2225	NRSA02J-221X	MG RESISTOR	R3058	NRSA02J-102X	MG RESISTOR	R3301	NRSA02J-102X	MG RESISTOR	R3301	NRSA02J-102X	MG RESISTOR
R73	NRSA02J-222X	MG RESISTOR	R2226	NRSA02J-102X	MG RESISTOR	R3059	NRSA02J-471X	MG RESISTOR	R3302	NRSA02J-102X	MG RESISTOR	R3302	NRSA02J-102X	MG RESISTOR
R120	NRSA02J-0R0X	MG RESISTOR	R2228	NRSA02J-221X	MG RESISTOR	R3060	NRSA02J-102X	MG RESISTOR	R3303	NRSA02J-472X	MG RESISTOR	R3303	NRSA02J-472X	MG RESISTOR
R121	NRSA02J-0R0X	MG RESISTOR	R2229	NRSA02J-221X	MG RESISTOR	R3061	NRSA02J-102X	MG RESISTOR	R3304	NRSA02J-472X	MG RESISTOR	R3304	NRSA02J-472X	MG RESISTOR
R122	NRSA02J-101X	MG RESISTOR	R2232	NRSA02J-123X	MG RESISTOR	R3062	NRSA02J-102X	MG RESISTOR	R3310	NRSA02J-105X	MG RESISTOR	R3310	NRSA02J-105X	MG RESISTOR
R123	NRSA02J-102X	MG RESISTOR	R2233	NRSA02J-823X	MG RESISTOR	R3064	NRSA02J-102X	MG RESISTOR	R3314	NRSA02J-472X	MG RESISTOR	R3314	NRSA02J-472X	MG RESISTOR
R133	NRSA02J-222X	MG RESISTOR	R2251	NRSA02J-101X	MG RESISTOR	R3067	NRSA02J-472X	MG RESISTOR	R3315	NRSA02J-472X	MG RESISTOR	R3315	NRSA02J-472X	MG RESISTOR
R137	NRSA02J-222X	MG RESISTOR	R2253	NRSA02J-270X	MG RESISTOR	R3068	NRSA02J-102X	MG RESISTOR	R3316	NRSA02J-472X	MG RESISTOR	R3316	NRSA02J-472X	MG RESISTOR
R138	NRSA02J-392X	MG RESISTOR	R2254	NRSA02J-220X	MG RESISTOR	R3069	NRSA02J-271X	MG RESISTOR	R3317	NRSA02J-0R0X	MG RESISTOR	R3317	NRSA02J-0R0X	MG RESISTOR
R143	NRSA02J-0R0X	MG RESISTOR	R2256	NRSA02J-102X	MG RESISTOR	R3070	NRSA02J-271X	MG RESISTOR	R3318	NRSA02J-102X	MG RESISTOR	R3318	NRSA02J-102X	MG RESISTOR
R158	NRSA02J-102X	MG RESISTOR	R2258	NRSA02J-221X	MG RESISTOR	R3071	NRSA02J-472X	MG RESISTOR	R3319	NRSA02J-472X	MG RESISTOR	R3319	NRSA02J-472X	MG RESISTOR
R2001	NRSA02J-103X	MG RESISTOR	R2259	NRSA02J-222X	MG RESISTOR	R3073	NRSA02J-472X	MG RESISTOR	R3320	NRSA02J-472X	MG RESISTOR	R3320	NRSA02J-472X	MG RESISTOR
R2002	NRSA02J-103X	MG RESISTOR	R2711	NRSA02J-221X	MG RESISTOR	R3074	NRSA02J-472X	MG RESISTOR	R3321	NRSA02J-222X	MG RESISTOR	R3321	NRSA02J-222X	MG RESISTOR
R2003	NRSA02J-682X	MG RESISTOR	R2712	NRSA02J-221X	MG RESISTOR	R3075	NRSA02J-472X	MG RESISTOR	R3322	NRSA02J-472X	MG RESISTOR	R3322	NRSA02J-472X	MG RESISTOR
R2004	NRSA02J-224X	MG RESISTOR	R2713	NRSA02J-472X	MG RESISTOR	R3076	NRSA02J-472X	MG RESISTOR	R3323	NRSA02J-472X	MG RESISTOR	R3323	NRSA02J-472X	MG RESISTOR
R2005	NRSA02J-181X	MG RESISTOR	R2714	NRSA02J-472X	MG RESISTOR	R3077	NRSA02J-472X	MG RESISTOR	R3324	NRSA02J-472X	MG RESISTOR	R3324	NRSA02J-472X	MG RESISTOR
R2006	NRSA02J-273X	MG RESISTOR	R2715	NRSA02J-472X	MG RESISTOR	R3078	NRSA02J-102X	MG RESISTOR	R3325	NRSA02J-472X	MG RESISTOR	R3325	NRSA02J-472X	MG RESISTOR
R2007	NRSA02J-223X	MG RESISTOR	R2716	NRSA02J-472X	MG RESISTOR	R3079	NRSA02J-472X	MG RESISTOR	R3326	NRSA02J-332X	MG RESISTOR	R3326	NRSA02J-332X	MG RESISTOR
R2009	NRSA02J-101X	MG RESISTOR, DD858EH	R3001	NRSA02J-472X	MG RESISTOR	R3080	NRSA02J-682X	MG RESISTOR	R3327	NRSA02J-332X	MG RESISTOR	R3327	NRSA02J-332X	MG RESISTOR
R2013	NRSA02J-101X	MG RESISTOR	R3002	NRSA02J-472X	MG RESISTOR	R3201	NRSA02J-104X	MG RESISTOR	R3343	NRSA02J-102X	MG RESISTOR	R3343	NRSA02J-102X	MG RESISTOR
R2016	NRSA02J-0R0X	MG RESISTOR	R3003	NRSA02J-472X	MG RESISTOR	R3203	NRSA02J-682X	MG RESISTOR	R3344	NRSA02J-102X	MG RESISTOR	R3344	NRSA02J-102X	MG RESISTOR
R2018	NRSA02J-472X	MG RESISTOR	R3004	NRSA02J-102X	MG RESISTOR	R3204	NRSA02J-222X	MG RESISTOR	R3345	NRSA02J-102X	MG RESISTOR	R3345	NRSA02J-102X	MG RESISTOR
R2019	NRSA02J-472X	MG RESISTOR	R3010	NRSA02J-105X	MG RESISTOR	R3205	NRSA02J-103X	MG RESISTOR	R3346	NRSA02J-102X	MG RESISTOR	R3346	NRSA02J-102X	MG RESISTOR
R2053	NRSA02J-562X	MG RESISTOR	R3014	NRSA02J-102X	MG RESISTOR	R3206	NRSA02J-472X	MG RESISTOR	R3347	NRSA02J-102X	MG RESISTOR	R3347	NRSA02J-102X	MG RESISTOR
R2054	NRSA02J-153X	MG RESISTOR	R3015	NRSA02J-472X	MG RESISTOR	R3207	NRSA02J-103X	MG RESISTOR	R3348	NRSA02J-102X	MG RESISTOR	R3348	NRSA02J-102X	MG RESISTOR
R2055	NRSA02J-3R3X	MG RESISTOR	R3016	NRSA02J-472X	MG RESISTOR	R3209	QRE141J-181Y	RESISTOR	R3349	NRSA02J-102X	MG RESISTOR	R3349	NRSA02J-102X	MG RESISTOR
R2056	QRE141J-101Y	RESISTOR	R3017	NRSA02J-472X	MG RESISTOR	R3210	NRSA02J-183X	MG RESISTOR	R3350	NRSA02J-102X	MG RESISTOR	R3350	NRSA02J-102X	MG RESISTOR
R2057	NRSA02J-473X	MG RESISTOR	R3019	NRSA02J-102X	MG RESISTOR	R3211	NRSA02J-183X	MG RESISTOR	R3351	NRSA02J-102X	MG RESISTOR	R3351	NRSA02J-102X	MG RESISTOR
R2058	NRSA02J-183X	MG RESISTOR	R3020	NRSA02J-472X	MG RESISTOR	R3212	NRSA02J-181X	MG RESISTOR	R3352	NRSA02J-472X	MG RESISTOR	R3352	NRSA02J-472X	MG RESISTOR
R2059	NRSA02J-473X	MG RESISTOR	R3021	NRSA02J-472X	MG RESISTOR	R3213	NRSA02J-273X	MG RESISTOR	R3353	NRSA02J-472X	MG RESISTOR	R3353	NRSA02J-472X	MG RESISTOR

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#	Δ REF No.	PART No.	PART NAME, DESCRIPTION	#	Δ REF No.	PART No.	PART NAME, DESCRIPTION	#	Δ REF No.	PART No.	PART NAME, DESCRIPTION	#	Δ REF No.	PART No.	PART NAME, DESCRIPTION
C2257		NCB21HK-103X	CAPACITOR	ESPC5308		NCB21HK-102X	CAPACITOR	NRS02J-101X		J7108	RES/P61012		R7106	NRSA02J-101X	MG RESISTOR
C2258		NCB21HK-223X	CAPACITOR	ESPC5309		QETC1AM-107	E CAPACITOR	NRS02J-101X		LF5001	ESPELN1204-01-01		R7107	NRSA02J-101X	MG RESISTOR
C2260		NDC21HJ-221X	CAPACITOR	ESPC5310		QETC1CM-226	E CAPACITOR	NRS02J-101X		LF5002	ESQQR0608-001		R7108	NRSA02J-750X	MG RESISTOR
C2261		NCB21HK-103X	CAPACITOR	ESPC5311		QETC1CM-476	E CAPACITOR	NRS02J-101X		CN13	ESQGF1018C1-11		R7109	NRSA02J-750X	MG RESISTOR
C3001		QEKJ1CM-336	E CAPACITOR	ESPC5317		QETC1CM-107	E CAPACITOR	NRS02J-101X		CN2001	ESQGF1207C1-07		R7111	NRSA02J-101X	MG RESISTOR
C3004		QEZ0244-229	EDL CAPACITOR	ESPC6001		QETC1CM-476	E CAPACITOR	NRS02J-101X		CN2002	ESQGB2532J1-02		R7112	NRSA02J-101X	MG RESISTOR
C3006		NCB21CK-473X	CAPACITOR	ESPC6003		QETC1CM-336	E CAPACITOR	NRS02J-101X		CN3001	ESQGB2015M1-08		R7113	NRSA02J-101X	MG RESISTOR
C3012		NDC21HJ-102X	CAPACITOR	ESPC6004		NCB21HK-103X	CAPACITOR	NRS02J-101X		CN3003	ESQGB2532J1-02		R7114	NRSA02J-101X	MG RESISTOR
C3015		QEKJ1CM-106	E CAPACITOR	ESPC6005		QETC1HM-106	E CAPACITOR	NRS02J-101X		CN3004	ESQGB2534J2-04		R7115	NRSA02J-101X	MG RESISTOR
C3016		NCB21HK-103X	CAPACITOR	ESPC6006		NCB21HK-103X	CAPACITOR	NRS02J-101X		CN3005	ESQGF1207C1-12		R7116	NRSA02J-101X	MG RESISTOR
C3017		NDC21HJ-180X	CAPACITOR	ESPC6008		NCB21HK-103X	CAPACITOR	NRS02J-101X		CN3006	ESQGF1207C1-07		R7133	NRSA02J-471X	MG RESISTOR
C3018		QAT7001-450Z	TRIM CAPACITOR,TIMER CLOCK	ESPC6012		QETC1HM-106	E CAPACITOR	NRS02J-101X		CN3301	ESQGB2011L2-06		R7134	NRSA02J-511X	MG RESISTOR
C3022		NCB21CK-473X	CAPACITOR	ESPC6014		NCB21CK-473X	CAPACITOR	NRS02J-101X		CN4001	ESQGF1207C1-04		R7136	NRSA02J-103X	MG RESISTOR
C3025		QEKJ1HM-106	E CAPACITOR	ESPC6024		NCB21HK-471X	CAPACITOR	NRS02J-101X		CN5001	ESQGA7901C3-02		R7137	NRSA02J-333X	MG RESISTOR
C3026		NCB21HK-103X	CAPACITOR	ESPC6027		NDC21HJ-101X	CAPACITOR	NRS02J-101X		CN7104	ESQGB2013K1-11		R7138	NRSA02J-473X	MG RESISTOR
C3027		NCB21EK-104X	CAPACITOR	ESPC6031		QETC1HM-106	E CAPACITOR,DD858EH	NRS02J-101X		CN7105	ESQGB2013K1-13		R7139	NRSA02J-103X	MG RESISTOR
C3034		NCB21HK-221X	CAPACITOR	ESPC6032		NCB21EK-333X	CAPACITOR,DD858EH	NRS02J-101X		CN7106	ESQGB2013K1-11		R7140	NRSA02J-333X	MG RESISTOR
C3042		NRSA02J-0R0X	MG RESISTOR	ESPC6033		NRSA02J-0R0X	MG RESISTOR	NRS02J-101X		CN7162	ESQGF1207C1-05		R7141	NRSA02J-103X	MG RESISTOR
C3043		NRSA02J-0R0X	MG RESISTOR	ESPC6051		NCB21HJ-101X	CAPACITOR	NRS02J-101X		CP3003	ESQCP-N20		R7147	NRSA02J-822X	MG RESISTOR,DD858E
C3302		QEKJ1CM-106	E CAPACITOR	ESPC6052		NCB21HK-103X	CAPACITOR	NRS02J-101X		CP4001	ESQCP-N15		R7148	NRSA02J-123X	MG RESISTOR,DD858E
C3303		NCF21EZ-104X	CAPACITOR	ESPC6053		QQL29BJ-100Z	COIL	NRS02J-101X		CP5301	ESQCP-N38		R7149	NRSA02J-822X	MG RESISTOR,DD858E
C3306		NCB21EK-104X	CAPACITOR	ESPC6054		QQL29BJ-100Z	COIL	NRS02J-101X		CP5302	ESQCP-N25		R7150	NRSA02J-123X	MG RESISTOR,DD858E
C3307		NCB21EK-104X	CAPACITOR	ESPC6055		QQL071J-820Y	COIL	NRS02J-101X							
C4001		NDC21HJ-101X	CAPACITOR	ESPC6056		QQL071J-101Y	COIL	NRS02J-101X							
C4002		NCB21HK-102X	CAPACITOR	ESPC6057		QQL29BJ-100Z	COIL	NRS02J-101X							
C4003		NCB21HK-102X	CAPACITOR	ESPC6058		QQL071J-820Y	COIL	NRS02J-101X							
C4004		NCB21HK-102X	CAPACITOR	ESPC6059		QQL29BJ-100Z	COIL	NRS02J-101X							
C4005		NDC21HJ-470X	CAPACITOR	ESPC6060		QQL071J-820Y	COIL	NRS02J-101X							
C4006		QEKJ1HM-105	E CAPACITOR	ESPC6061		QQL071J-820Y	COIL	NRS02J-101X							
C4007		NCB21EK-104X	CAPACITOR	ESPC6062		QQL071J-820Y	COIL	NRS02J-101X							
C4008		NCB21EK-103X	CAPACITOR	ESPC6063		QQL071J-820Y	COIL	NRS02J-101X							
C4010		QEKJ1CM-106	E CAPACITOR	ESPC6064		QQL071J-820Y	COIL	NRS02J-101X							
C4011		QEKJ1CM-107	E CAPACITOR	ESPC6065		QQL071J-820Y	COIL	NRS02J-101X							
C4013		QEKJ1CM-106	E CAPACITOR	ESPC6066		QQL071J-820Y	COIL	NRS02J-101X							
C4014		NCB21EK-223X	CAPACITOR	ESPC6067		QQL071J-820Y	COIL	NRS02J-101X							
C4015		NCB21HK-223X	CAPACITOR	ESPC6068		QQL071J-820Y	COIL	NRS02J-101X							
C4017		NCB21CK-563X	CAPACITOR	ESPC6069		QQL071J-820Y	COIL	NRS02J-101X							
C4018		NDC21HJ-221X	CAPACITOR	ESPC6070		QQL071J-820Y	COIL	NRS02J-101X							
C5001		QFZ9051-683	F CAPACITOR	ESPC6071		QQL071J-820Y	COIL	NRS02J-101X							
C5002		QFZ9051-333	F CAPACITOR	ESPC6072		QQL071J-820Y	COIL	NRS02J-101X							
C5005		QFZ9071-222	F CAPACITOR	ESPC6073		QQL071J-820Y	COIL	NRS02J-101X							
C5006		QEZ0374-686	F CAPACITOR	ESPC6074		QQL071J-820Y	COIL	NRS02J-101X							
C5101		QCZ0212-472	F CAPACITOR	ESPC6075		QQL071J-820Y	COIL	NRS02J-101X							
C5102		QCZ0302-330Z	F CAPACITOR	ESPC6076		QQL071J-820Y	COIL	NRS02J-101X							
C5104		QETC1HM-105	E CAPACITOR	ESPC6077		QQL071J-820Y	COIL	NRS02J-101X							
C5105		QFN31HJ-183	F CAPACITOR	ESPC6078		QQL071J-820Y	COIL	NRS02J-101X							
C5106		QCB81HJ-271	F CAPACITOR	ESPC6079		QQL071J-820Y	COIL	NRS02J-101X							
C5107		QFV1HJ-104Z	F CAPACITOR	ESPC6080		QQL071J-820Y	COIL	NRS02J-101X							
C5201		QEMUJUM-227	E CAPACITOR	ESPC6081		QQL071J-820Y	COIL	NRS02J-101X							
C5202		QEMT1CM-827	E CAPACITOR	ESPC6082		QQL071J-820Y	COIL	NRS02J-101X							
C5203		QETC1CM-227	E CAPACITOR	ESPC6083		QQL071J-820Y	COIL	NRS02J-101X							
C5204		QEMT1AM-687	E CAPACITOR	ESPC6084		QQL071J-820Y	COIL	NRS02J-101X							
C5205		QETC1AM-227	E CAPACITOR	ESPC6085		QQL071J-820Y	COIL	NRS02J-101X							
C5206		QEMU1EM-187	E CAPACITOR	ESPC6086		QQL071J-820Y	COIL	NRS02J-101X							
C5207		QETC1CM-106	E CAPACITOR	ESPC6087		QQL071J-820Y	COIL	NRS02J-101X							
C5208		QETC1HM-106	E CAPACITOR	ESPC6088		QQL071J-820Y	COIL	NRS02J-101X							
C5301		QETC1AM-107	E CAPACITOR	ESPC6089		QQL071J-820Y	COIL	NRS02J-101X							
C5302		QETC1HM-106	E CAPACITOR	ESPC6090		QQL071J-820Y	COIL	NRS02J-101X							
C5303		QETC1CM-107	E CAPACITOR	ESPC6091		QQL071J-820Y	COIL	NRS02J-101X							
C5306		NCF21HZ-103X	CAPACITOR	ESPC6092		QQL071J-820Y	COIL	NRS02J-101X							
C5307		QETC1HM-474	E CAPACITOR	ESPC6093		QQL071J-820Y	COIL	NRS02J-101X							
				ESPC5308		NCB21HK-102X	CAPACITOR								
				ESPC5309		QETC1AM-107	E CAPACITOR								
				ESPC5310		QETC1CM-226	E CAPACITOR								
				ESPC5311		QETC1CM-476	E CAPACITOR								
				ESPC5317		QETC1CM-107	E CAPACITOR								
				ESPC6001		QETC1CM-476	E CAPACITOR								
				ESPC6003		QETC1CM-336	E CAPACITOR								
				ESPC6004		NCB21HK-103X	CAPACITOR								
				ESPC6005		QETC1HM-106	E CAPACITOR								
				ESPC6006		NCB21HK-103X	CAPACITOR								
				ESPC6008		NCB21HK-103X	CAPACITOR								
				ESPC6012		QETC1HM-106	E CAPACITOR								
				ESPC6014		NCB21CK-473X	CAPACITOR								
				ESPC6024		NCB21HK-471X	CAPACITOR								
				ESPC6027		NDC21HJ-101X	CAPACITOR								
				ESPC6031		QETC1HM-106	E CAPACITOR,DD858EH								
				ESPC6032		NCB21EK-333X	CAPACITOR,DD858EH								
				ESPC6033		NRSA02J-0R0X	MG RESISTOR								
				ESPC6051		NCB21HJ-101X	CAPACITOR								
				ESPC6052		NCB21HK-103X	CAPACITOR								
				ESPC6053		QQL29BJ-100Z	COIL								
				ESPC6054		QQL29BJ-100Z	COIL								
				ESPC6055		QQL071J-820Y	COIL								
				ESPC6056		QQL071J-101Y	COIL								
				ESPC6057		QQL29BJ-100Z	COIL								
				ESPC6058		QQL071J-820Y	COIL								
				ESPC6059		QQL29BJ-100Z	COIL								
				ESPC6060		QQL071J-820Y	COIL								
				ESPC6061		QQL071J-820Y	COIL								
				ESPC6062		QQL071J-820Y	COIL								
				ESPC6063		QQL071J-820Y	COIL								
				ESPC6064		QQL071J-820Y	COIL								
				ESPC6065		QQL071J-820Y	COIL								
				ESPC6066		QQL071J-820Y	COIL								
				ESPC6067		QQL071J-820Y	COIL								
				ESPC6068		QQL071J-820Y	COIL								
				ESPC6069		QQL071J-820Y	COIL								
				ESPC6070		QQL071J-820Y	COIL								
				ESPC6071		QQL071J-820Y	COIL								
				ESPC6072		QQL071J-820Y	COIL								
				ESPC6073		QQL071J-820Y	COIL								
				ESPC6074		QQL071J-820Y	COIL								
				ESPC6075		QQL071J-820Y	COIL								

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#	Δ REF No.	PART No.	PART NAME, DESCRIPTION
1	R7037	QRE141J-153Y	RESISTOR 15kΩ, 1/4W
2	R7038	QRE141J-393Y	RESISTOR 39kΩ, 1/4W
3	R7040	QRE141J-331Y	RESISTOR 330Ω, 1/4W
4	R7041	QRE141J-331Y	RESISTOR 330Ω, 1/4W
5	C7001	QDVB1EZ-223Y	CAPACITOR 0.022μF, 25V
6	C7002	QEK1CHM-106	E CAPACITOR 10μF, 50V
7	C7007	QEK1JCM-476	E CAPACITOR 47μF, 16V
8	C7008	QDVB1EZ-223Y	CAPACITOR 0.022μF, 25V
9	C7009	QCSB1HJ-150	CAPACITOR 15pF, 50V
10	C7010	QCFB1HZ-104	CAPACITOR 0.1μF, 50V
11	C7011	QEKJ0JM-227	E CAPACITOR 220μF, 6.3V
12	C7192	QCSB1HJ-681	CAPACITOR 680pF, 50V
13	C7194	QCSB1HJ-681	CAPACITOR 680pF, 50V
14	L7191	QRE141J-101Y	RESISTOR 100Ω, 1/4W
15	L7192	QRE141J-101Y	RESISTOR 100Ω, 1/4W
16	S7001	QSW0456-002Z	TACT SWITCH, POWER
17	S7002	QSW0456-002Z	TACT SWITCH, CH+
18	S7003	QSW0456-002Z	TACT SWITCH, CH-
19	S7004	QSW0456-002Z	TACT SWITCH, REC
20	S7005	QSW0456-002Z	TACT SWITCH, PAUSE
21	S7008	QSW0456-002Z	TACT SWITCH, A.DUB
22	S7009	QSW0456-002Z	TACT SWITCH, INSERT
23	S7010	QSW0456-002Z	TACT SWITCH, TIMER
24	S7011	QSW0456-002Z	TACT SWITCH, SPATIALIZER
25	S7012	QSW0456-002Z	TACT SWITCH, TRI-R
26	S7013	QSW0456-002Z	TACT SWITCH, ST BOX
27	S7014	QSW0456-002Z	TACT SWITCH, STOP/EJECT
28	S7015	QSW0456-002Z	TACT SWITCH, PLAY
29	HD1001	PQ34668	FDP HOLDER(L), D17001
30	HD2001	PQ34669	FDP HOLDER(R), D17001
31	HD3001	PQM30038-6	LED HOLDER, D7009
32	HD4001	PQM30038-6	LED HOLDER, D7010
33	OT1001	LP30002-052A	SPACER, X2
34	DI7001	QLF0032-002	FL TUBE
35	FW7001	QUM032-07A4A4	PARA RIBON WIRE
36	J7191	PEMC1009-04	PIN JACK, VIDEO IN
37	J7192	PEMC1010-03	PIN JACK(SW), AUDIO(L)IN
38	J7193	PEMC1010-02	PIN JACK(SW), AUDIO(R)IN
39	CN7001	QGF1208C1-12	FPC CONNECTOR, (1-12) MAIN
40	CN7191	QGF1207C1-05	FPC CONNECTOR, (3-7) MAIN
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REC SAFETY BOARD ASSEMBLY <32>

#	PART No.	PART NAME, DESCRIPTION
1	PW2	LPA10018-01B2 REC SAFETY BOARD ASSY
2	S7041	QSW0602-002 PUSH SWITCH